

SAT Math Quizzes

Volume 1

Triumph College Admissions



Skill Lesson

Quiz Time!

A B C ☒ E



Hints!

A B C ☒ E



Answers!

A B C ☒ E



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Math Lesson #1

Basic Math Skills

- *Arithmetic*
- *Divisibility*
- *Ratios*
- *Probability*

Triumph College Admissions

 **Skill Lesson**

Quiz Time! 
☐ A ☐ B ☐ C ☒ D ☐ E

Hints! 
☐ A ☐ B ☐ C ☒ D ☐ E

Answers! 
☐ A ☐ B ☐ C ☒ D ☐ E

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Grid-in your answer here:

Question 1

How many bottles, each holding 12 fluid ounces, are needed to hold 6 quarts of orange juice? (1 quart equals 32 fluid ounces.)

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Question 2

How many more bags would be needed to package 1,600 marbles in bags of 10 than in bags of 16?

- (A) 6
- (B) 10
- (C) 60
- (D) 100
- (E) 600

Question 3

In the correctly worked addition problem below, each X represents the same digit. What is the value of X?

$$\begin{array}{r}
 X5 \\
 X7 \\
 X8 \\
 +X9 \\
 \hline
 229
 \end{array}$$

- (A) 2
- (B) 3
- (C) 4
- (D) 5
- (E) 6

Question 4

Which of the following numbers has the digit 5 in the thousandths place?

- (A) .0005
- (B) .0050
- (C) .050
- (D) .5000
- (E) 5,000.0

Question 5

Which of the following is equal to 14?

- (A) $2 \times [8 - (6 + 3)]$
- (B) $2 \times [(8 - 6) / 3]$
- (C) $[2 \times (8 - 6)] / 3$
- (D) $[(2 \times 8) - 6] / 3$
- (E) $(2 \times 8) - (6 / 3)$

Question 6

If $x + 5$ is an even integer, then x could be any of the following, except...

- (A) -5
- (B) -2
- (C) 1
- (D) 3
- (E) 5

Question 7

Which of the following numbers has the digit 6 in the hundreds place?

- (A) $5 \times 10^3 + 4 \times 10^2 + 6 \times 10^1 + 3 \times 10^0$
- (B) $6 \times 10^3 + 5 \times 10^2 + 4 \times 10^1 + 3 \times 10^0$
- (C) $4 \times 10^3 + 3 \times 10^2 + 2 \times 10^1 + 5 \times 10^0$
- (D) $3 \times 10^3 + 6 \times 10^2 + 4 \times 10^1 + 5 \times 10^0$
- (E) $5 \times 10^3 + 4 \times 10^2 + 3 \times 10^1 + 6 \times 10^0$

Studyguide for the SAT Skill Quiz A: Arithmetic

Question 8

Through how many degrees does the minute hand of a clock turn from 7:05 a.m. to 7:25 a.m. of the same day?

- (A) 20
- (B) 90
- (C) 120
- (D) 180
- (E) 240

Grid-in your answer here:

Question 9

On a certain map a distance of 15 miles is represented by 1.0 centimeter. How many miles are represented by 4.5 centimeters on the map?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Question 10

If A, B, and C are the hundreds, tens, and units digits, respectively, of a number, how many tens are equal to that number?

- (A) $A + \frac{B+C}{10}$
- (B) $A + \frac{10B+C}{10}$
- (C) $\frac{A}{10} + B + 10C$
- (D) $10A + B + \frac{C}{10}$
- (E) $100A + 10B + C$



Question 1

Peggy received pledges from 40 people for a 6-mile walk-a-thon. Peggy walked 6 miles and each person gave \$0.25 for each mile she walked. Which of the following gives the total dollar amount Peggy collected?

- (A) $6 \times 0.25 + 40$
- (B) $6 \times 0.25 \times 40$
- (C) $40 \times 6 + 0.25$
- (D) $6 + 40 \times 0.25$
- (E) $6 + 40 + 0.25$

Grid-in your answer here:

Question 2

Packs of gum are 3 for \$0.70, and baseball cards are 4 for \$1.12. What is Cato's change from \$5.00 if he buys six packs of gum and 12 baseball cards?

	/	/	
.	.	.	.
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Question 3

If an object travels at 4 feet per minute, how far does it travel in one-quarter hour?

- (A) 1
- (B) 4.25
- (C) 15
- (D) 44
- (E) 60

Studyguide for the SAT Skill Quiz B: Arithmetic

Question 4

11:30 a.m. is how many minutes past 9:45 a.m.?

- (A) 45
- (B) 65
- (C) 90
- (D) 105
- (E) 125

Question 5

The number $a - 5$ is how much less than $a + 5$?

- (A) 5
- (B) 10
- (C) $a - 10$
- (D) $a - 5$
- (E) $2a$

Question 6

If an "octamminute" is equivalent to 8 minutes of time, how many octaminutes are equivalent to 4 hours of time?

- (A) 30
- (B) 32
- (C) 240
- (D) 480
- (E) 1,920

Question 7

If flour costs p cents a pound, how many pounds of flour can be bought for \$3.00?

- | | |
|---------------------|---------------------|
| (A) $300p$ | (D) $\frac{3}{p}$ |
| (B) $3p$ | |
| (C) $\frac{300}{p}$ | (E) $\frac{p}{300}$ |

Studyguide for the SAT Skill Quiz B: Arithmetic

Question 8

A certain building has 3,500 square feet of surface that needs to be painted. If 1 gallon of paint will cover 300 square feet, what is the least whole number of gallons that must be purchased in order to have enough paint to apply one coat to the surface? (Assume that only whole gallons of paint can be purchased.)

- (A) 11
(B) 12
(C) 13
(D) 20
(E) 32

Question 9

Jerry spends \$2.95 for lunch at school each day. He wants to estimate the amount he will spend for lunch during the month of December, which has 18 school days. Which of the following will give him the best estimate?

- (A) 2.00×15
(B) 2.00×20
(C) 2.50×10
(D) 2.50×15
(E) 3.00×20

Grid-in your answer here:

Question 10

$$\begin{array}{r} 9\text{B}3 \\ \text{A}65 \\ +\underline{39\text{C}} \\ \hline \text{B}872 \end{array}$$

In the above problem B, C, and A represent digits in the correctly worked addition problem.

What is the sum of B, C, and A?

.	/	/		
.
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9



Question 1

Which of the following is equal to 4?

- (A) $16 / [8 - (6 \times 2)]$
- (B) $[16 / (8 - 6)] \times 2$
- (C) $[(16 / 8) - 6] \times 2$
- (D) $16 / [(8 - 6) \times 2]$
- (E) $(16 / 2) - (6 \times 2)$

Question 2

If lace costs \$0.42 per yard, how many yards of lace can be bought for \$7.35?

- (A) $5 \frac{7}{10}$
- (B) 6
- (C) $12 \frac{1}{2}$
- (D) 17
- (E) $17 \frac{1}{2}$

Question 3

In Italy, when 1 dollar was approximately equal to 1,800 lire, a certain shirt cost 46,000 lire. Of the following, which is the best approximation of the cost of the shirt, in dollars?

- (A) 10
- (B) 15
- (C) 20
- (D) 25
- (E) 30

Studyguide for the SAT Skill Quiz C: Arithmetic

Question 4

Sally buys paper and a pen for \$2.09. If the pen costs \$0.31 more than the paper, how much does the paper cost?

- (A) 0.20
- (B) 0.31
- (C) 0.89
- (D) 1.20
- (E) 2.09

Question 5

On planet Xydo, if each year has 6 months and each month has 21 days, how many years will have passed after 882 days?

- (A) 1
- (B) 6
- (C) 7
- (D) 42
- (E) 147

Question 6

1st Row	0	0	0	1	0	0	0
2nd Row	0	0	1	1	1	0	0
3rd Row	0	1	2	3	2	1	0
4th Row	0	3	6	7	6	3	0
5th Row	0	—	—	—	—	—	0

Beginning with the second row, each number in a row shown is the sum of the three numbers nearest to it in the row immediately above. If a fifth row is added in this fashion, what will be the sum of all the numbers in the fifth row?

- (A) 25
- (B) 36
- (C) 49
- (D) 64
- (E) 69

Question 7

In the ABC Preschool, children must be no more than 4 years old on the start date of August 1. What is the oldest, in months, that a child can be on April 1 and still start school on the following August 1?

- (A) 42
- (B) 43
- (C) 44
- (D) 45
- (E) 46

Question 8

How many three-digit numbers have the hundreds digit equal to 4 and the units digit equal to 5?

- (A) 10
- (B) 19
- (C) 20
- (D) 190
- (E) 200

Question 9

Speed (in miles per hour)	Thinking Distance (in feet)	Braking Distance (in feet)
20	20	20
30	30	45
40	40	80
50	50	125
60	60	180

The table above can be used to calculate the distance required to stop a car traveling at a given speed by adding the thinking distance and the braking distance. How many more feet does it take to stop a car traveling at 60 miles per hour than at 30 miles per hour?

- | | |
|---------|---------|
| (A) 30 | (D) 165 |
| (B) 75 | (E) 240 |
| (C) 135 | |

Grid-in your answer here:

Question 10

$$\begin{array}{r} 24P \\ +P3 \\ \hline 26R \end{array}$$

In the above problem P and R represent digits in the correctly worked addition problem. What does R represent?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9



Grid-in your answer here:

Question 1

Of a set of 48 pencils, $\frac{1}{3}$ of them are red. Exactly 10 of the red pencils have erasers. The rest of the red pencils do not have erasers. How many of the red pencils do not have erasers?

.	/	/	.	.
	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Question 2

A number is given whose tens digit is t and whose units digit is u . If the digit 5 is placed after these two digits, the value of the new number is

- (A) $t + 5$
(B) $10t + u + 5$
(C) $10t + 10u + 5$
(D) $100t + 10u + 5$
(E) $100t + u + 50$

Question 3

If wood costs \$0.64 per square foot, how many square feet of wood can be bought for \$16.00?

- (A) 4
(B) 8
(C) $20\frac{2}{3}$
(D) 25
(E) $25\frac{1}{2}$

Question 4

$$\begin{array}{r} 37 \\ \times 2A \\ \hline 1CB \\ \hline 74 \\ \hline 92B \end{array}$$

If A, B, and C each represent a digit in the correctly worked problem above, what digit does A represent?

- (A) 3
- (B) 4
- (C) 5
- (D) 6
- (E) 7

Question 5

If $3x$ is an odd integer, then x could be any of the following except

- (A) -3
- (B) 4
- (C) 5
- (D) 7
- (E) 9

Question 6

In a two-digit number r is the tens digit and s is the units digit, if 10 is added to the number the resulting number could be expressed as

- (A) $10r + s$
- (B) $10(r + 1) + s$
- (C) $10r + 10s$
- (D) $10r + s + 1$
- (E) $11r + s$

Studyguide for the SAT Skill Quiz D: Arithmetic

Question 7

Through how many degrees does a minute hand of a clock turn from 6:40 a.m. to 6:55 a.m.?

- (A) 20
- (B) 90
- (C) 120
- (D) 180
- (E) 240

Grid-in your answer here:

Question 8

April packed 360 bottles of purified water in cartons of 12 bottles each and Bruce packed 360 bottles of purified water in cartons of 30 bottles each. How many more cartons did April use than Bruce used?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Grid-in your answer here:

Question 9

How many bottles, each holding 16 fluid ounces, are needed to hold 10 quarts of orange juice? (1 quart = 32 fluid ounces)

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Grid-in your answer here:

Question 10

Typically, five oranges of a certain variety weigh 1 pound. Twenty pounds of these oranges cost \$18.00. At this rate, what is the cost, in dollars, of two dozen oranges?
(This is a grid-in problem. Disregard the dollar sign when you grid your answer. If, for example, your answer is \$1.34, grid 1.34.)

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9



Question 1

There are fewer than 40 students enrolled in a certain class. If, at a certain time, $\frac{1}{7}$ of the students are members of the band and another $\frac{1}{5}$ are members of sports teams, what is the total class enrollment?

- (A) 10
- (B) 14
- (C) 25
- (D) 28
- (E) 35

Question 2

How many different positive integral divisors does 24 have including 1 and 24?

- (A) 8
- (B) 7
- (C) 6
- (D) 4
- (E) 2

Question 3

A number is divisible by 3 if the sum of its digits is divisible by 3. Which of the following numbers is divisible by 15?

- (A) 21,115
- (B) 24,048
- (C) 32,715
- (D) 33,333
- (E) 72,365

Studyguide for the SAT Skill Quiz A: Divisibility

Question 4

If $r \times s \times t = 360$ where r , s , and t are integers with $r > s > t > 1$, what is the greatest possible value of r ?

- (A) 180
- (B) 60
- (C) 36
- (D) 24
- (E) 12

Question 5

If x is divided by 8, the remainder is 7. What is the remainder if $4x$ is divided by 8?

- (A) 5
- (B) 4
- (C) 3
- (D) 2
- (E) 1

Question 6

Eggs are packed exactly 1 dozen to a carton, and extras are left for the next packing. If 206 eggs are ready to be packed and if there are plenty of cartons, how many eggs will be left for the next packing?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5

Question 7

If R is divisible by 2 and S is divisible by 3, which of the following must RS be divisible by?

- (A) 4
- (B) 5
- (C) 6
- (D) 7
- (E) 9

Question 8

If R is replaced by one of the digits listed below, the given number will be divisible by 2, 3, 4, 5, and 9. What is the value of R?

92,3R0

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5

Question 9

If $1,000 \geq r \geq 400$ and r is a multiple of 12, 15, 16, and 18, then $r =$

- (A) 480
- (B) 600
- (C) 720
- (D) 840
- (E) 960

Question 10

When 35 is divided by 6, the remainder is the same as when 82 is divided by which of the following numbers?

- (A) 4
- (B) 5
- (C) 6
- (D) 7
- (E) 8



Question 1

There are fewer than 40 students enrolled in a certain class. If, at a certain time, $\frac{1}{11}$ of the students are members of the soccer team and another $\frac{1}{3}$ are members the chess team, what is the total class enrollment?

- (A) 11
- (B) 14
- (C) 21
- (D) 22
- (E) 33

Question 2

A number is divisible by 11 if by alternately subtracting and adding its digits you get a number divisible by 11. Example: 924 is divisible by 11 because $9 - 2 + 4 = 11$ and 11 is divisible by 11. (Don't forget 0 is divisible by 11.) Which of the following numbers is divisible by 11?

- (A) 721
- (B) 3,244
- (C) 8,731
- (D) 11,111
- (E) 85,723

Question 3

If a is divided by 5, the remainder is 2. What is the remainder if $3a$ is divided by 5?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5

Question 4

Sodas are packed exactly 24 to a case, and extras are left for the next packing. If 206 sodas are ready to be packed and if there are plenty of cases, how many sodas will be left for the next packing?

- (A) 22
- (B) 20
- (C) 14
- (D) 12
- (E) 4

Question 5

R is divisible by 3 and S is divisible by 5. Which of the following could be divisible by RS?

- (A) 185
- (B) 310
- (C) 711
- (D) 1,455
- (E) 3,565

Question 6

When a positive integer x is divided by 7, the remainder is 2. Which of the following expressions will yield a remainder of 4 when x is divided by 7?

- (A) $x + 1$
- (B) $x + 2$
- (C) $x + 3$
- (D) $x + 4$
- (E) $x + 5$

Question 7

If a , b , and c are integers greater than 1, where $ab = 10$ and $ac = 35$, which of the following must be true?

- (A) $c > a > b$
- (B) $b > c > a$
- (C) $b > a > c$
- (D) $a > b > c$
- (E) $c > b > a$

Studyguide for the SAT Skill Quiz B: Divisibility

Question 8

The product of two integers is between 206 and 211. Which of the following **cannot** be one of the integers?

- (A) 5
- (B) 7
- (C) 9
- (D) 17
- (E) 23

Grid-in your answer here:

Question 9

The number 76 is divisible by x where $1 < x < 76$.
What is one possible value of x ?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Grid-in your answer here:

Question 10

The product of 3 and x is divisible by 6.
If the product is between 20 and 29, what is one possible value of x ?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9



Question 1

When the package of grapes was opened, there were 36 grapes total. The first child ate $\frac{1}{3}$ of the grapes and the second child ate $\frac{1}{3}$ of the remainder. How many grapes remain?

- (A) 12
- (B) 16
- (C) 20
- (D) 24
- (E) 32

Question 2

The ratio of two numbers is 3:7. If the larger number is 35, what is the smaller number?

- (A) 3
- (B) 4
- (C) 7
- (D) 10
- (E) 15

Question 3

The ratio of girls to boys in the class is 2:1.

If there are 30 students in this class, how many are girls?

- (A) 2
- (B) 10
- (C) 18
- (D) 20
- (E) 32

Question 4

If the ratio of yellow jellybeans to red jellybeans is 4:3 and there are 21 jellybeans in the jar, how many are yellow?

- (A) 7
- (B) 9
- (C) 12
- (D) 14
- (E) 18

Question 5

The ratio of white socks in a drawer to blue socks is 3:4.

If there are 6 white socks in the drawer, how many blue socks are there?

- (A) 3
- (B) 4
- (C) 6
- (D) 7
- (E) 8

Question 6

During the month of May the ratio of grapes to bananas to apples sold in a grocery store was 2:3:5. If the store sold 30 apples in May, how many grapes, bananas, and apples did the store sell in all?

- (A) 30
- (B) 35
- (C) 45
- (D) 50
- (E) 60

Question 7

If the ratio of pecans to cherries in a salad is 3 to 5, which of the following cannot be the total number of pecans and cherries in the salad?

- (A) 32
- (B) 36
- (C) 40
- (D) 48
- (E) 56

Question 8

If the ratio of cats to dogs in a certain pound is 5:3, and there are 65 cats, how many dogs are in the pound?

- (A) 13
- (B) 18
- (C) 26
- (D) 36
- (E) 39

Question 9

After spending $\frac{5}{12}$ of her monthly income, Carole has \$140 left.

What is her monthly income?

- (A) 200
- (B) 240
- (C) 300
- (D) 420
- (E) 583

Question 10

In a schoolwide election, votes were cast for Mrs. Mitchell, Mr. Madison, and Mrs. Brinson in the ratio of 4:3:2. If these were the only candidates and 1,800 students voted for only one candidate each, how many voted for Mr. Madison?

- (A) 200
- (B) 300
- (C) 400
- (D) 600
- (E) 900



Question 1

A card is drawn from a standard 52 card deck.

What is the probability that this card is either a 5 or a 9?

- (A) $\frac{1}{52}$
- (B) $\frac{1}{26}$
- (C) $\frac{1}{13}$
- (D) $\frac{2}{13}$
- (E) $\frac{5}{9}$

Question 2

A drawer contains 12 red socks, 14 green socks, and 8 black socks.

A sock is taken out at random. What is the probability that the sock is NOT red?

- (A) $\frac{1}{12}$
- (B) $\frac{6}{17}$
- (C) $\frac{6}{11}$
- (D) $\frac{11}{17}$
- (E) $\frac{11}{6}$

Question 3

An average of 6% of widgets manufactured by ACME Widgets are defective. One lot had 42 defective widgets in it. What is the best estimate of the lot size?

- (A) 25.2
- (B) 70
- (C) 420
- (D) 700
- (E) 17,000

Question 4

Four coins are flipped. What is the probability that there will be exactly two heads?

- (A) $\frac{1}{16}$
- (B) $\frac{1}{8}$
- (C) $\frac{1}{4}$
- (D) $\frac{3}{8}$
- (E) $\frac{1}{2}$

Question 5

Four coins are flipped. What is the probability that there will be at least two heads?

- (A) $\frac{1}{8}$
- (B) $\frac{1}{4}$
- (C) $\frac{1}{2}$
- (D) $\frac{9}{16}$
- (E) $\frac{11}{16}$

Question 6

Each student at East High School is assigned a three-digit student ID.
How many unique three-digit numbers can be created?

- (A) 30
- (B) 100
- (C) 300
- (D) 1,000
- (E) 3,000

Question 7

How many five-digit zip codes can be created if 0 cannot be the first digit of the zip code?

- (A) 900
- (B) 10,000
- (C) 90,000
- (D) 100,000
- (E) 9,000,000

Question 8

For a certain bag of marbles, the probability of drawing a red marble is $\frac{3}{8}$. What is the probability of not drawing a red marble?

- (A) $\frac{1}{8}$
- (B) $\frac{2}{8}$
- (C) $\frac{3}{8}$
- (D) $\frac{1}{2}$
- (E) $\frac{5}{8}$

Question 9

Fifteen students are to be divided into five groups of three students each by drawing numbers from a bag. The bag contains fifteen slips of paper. There are three slips containing each number 1 - 5. If Marjorie is the first student to pick and picks a 2, what is the probability that the person behind her will also pick a 2?

- (A) $\frac{1}{15}$
- (B) $\frac{1}{7}$
- (C) $\frac{2}{15}$
- (D) $\frac{3}{14}$
- (E) $\frac{1}{2}$

Question 10

If the probability of drawing a blue marble out of a bag

of 30 marbles is $\frac{2}{5}$, how many blue marbles are in the bag?

(A) 2

(B) 5

(C) 12

(D) 15

(E) 20



Question 1

A bag contains five red marbles and three green marbles.
What is the probability of drawing a green marble from the bag?

- (A) $1/5$
- (B) $3/8$
- (C) $5/8$
- (D) $3/5$
- (E) 1

Question 2

From a standard 52 card deck, what is the probability of drawing a six?

- (A) $1/52$
- (B) $1/26$
- (C) $3/26$
- (D) $1/13$
- (E) $6/13$

Question 3

A bag has 30 red jelly beans, 40 green jelly beans, and 20 yellow jelly beans.
What is the probability of drawing a red jelly bean?

- (A) $\frac{2}{9}$
- (B) $\frac{1}{3}$
- (C) $\frac{4}{9}$
- (D) $\frac{2}{3}$
- (E) $\frac{3}{4}$

Question 4

Amanda has four blouses and three skirts.
How many different blouse-and-skirt combinations can Amanda create?

- (A) 7
- (B) 12
- (C) 16
- (D) 64
- (E) 81

Question 5

From a standard 52 card deck,
what is the probability of drawing a red jack?

- (A) $1/52$
- (B) $1/26$
- (C) $3/26$
- (D) $1/13$
- (E) $6/13$

Question 6

A fair coin* is tossed three times.

What is the probability that all three times the outcome is a head?

*A fair coin is a coin where the
probability of tossing
a head and a tail is the same.

- (A) $1/8$
- (B) $1/6$
- (C) $3/8$
- (D) $1/4$
- (E) 1

Question 7

A fair coin is tossed three times.

What is the probability that at least two heads were tossed?

- (A) $1/8$
- (B) $1/4$
- (C) $3/8$
- (D) $1/2$
- (E) 1

Question 8

Rasheed has 3 pairs of brown socks, 2 pairs of blue socks and 5 pairs of black socks in his dresser drawer.

If he reaches in his dresser drawer without looking, what is the probability that he will pick a blue pair of socks?

- (A) $1/5$
- (B) $3/10$
- (C) $2/5$
- (D) $1/2$
- (E) $4/5$

Question 9

Tony has 2 shirts, 3 pairs of pants, and 4 sports coats.
How many different outfits can Tony create?

- (A) 2
- (B) 6
- (C) 9
- (D) 12
- (E) 24

Question 10

Tanisha figures she can create 72 different outfits if
she mixes her skirts, blouses, and pairs of shoes.
Tanisha has four skirts and three blouses.
She has how many pairs of shoes?

- (A) 6
- (B) 7
- (C) 12
- (D) 18
- (E) 2



Question 1

What is the probability of rolling an even number with a single six-sided die?

- (A) $\frac{1}{6}$
- (B) $\frac{1}{5}$
- (C) $\frac{1}{4}$
- (D) $\frac{1}{3}$
- (E) $\frac{1}{2}$

Question 2

If you roll a pair of fair six-sided dice,
what is the probability that the sum will be 5?

- (A) $\frac{5}{12}$
- (B) $\frac{5}{36}$
- (C) $\frac{1}{9}$
- (D) $\frac{1}{18}$
- (E) $\frac{1}{36}$

Question 3

If you are rolling a pair of fair six-sided dice,

which of the following sums has a probability of $\frac{1}{18}$ of being rolled?

(A) 2

(B) 3

(C) 4

(D) 5

(E) 6

Question 4

A card is drawn from a regular 52-card deck.

What is the probability that the card will be a red face card?

(A) $\frac{3}{13}$

(B) $\frac{3}{26}$

(C) $\frac{1}{13}$

(D) $\frac{1}{26}$

(E) $\frac{1}{52}$

Question 5

Billy draws a card from a regular 52-card deck.
Without replacing the first card, he draws a second card.
If the first card that he drew was a king of clubs,
what is the probability that the second card drawn is a face card?

- (A) $\frac{1}{17}$
- (B) $\frac{4}{17}$
- (C) $\frac{3}{13}$
- (D) $\frac{11}{51}$
- (E) $\frac{11}{52}$

Question 6

A bag contains 26 blocks that each have a letter of the alphabet written on it. If Anthony draws one letter, what is the probability that the letter will be a letter in the word Anthony?

- (A) $\frac{1}{26}$
- (B) $\frac{1}{13}$
- (C) $\frac{3}{13}$
- (D) $\frac{7}{26}$
- (E) $\frac{1}{7}$

Question 7

The Roberts family entered a raffle. If each of the 5 members of the family entered one time and there were 250 total entries, what is the probability that a member of the Roberts family wins the raffle?

- (A) $\frac{1}{250}$
- (B) $\frac{1}{125}$
- (C) $\frac{1}{50}$
- (D) $\frac{1}{25}$
- (E) $\frac{1}{5}$

Question 8

A bag of marbles contains five red marbles, 12 blue marbles, and eight green marbles. If one marble is drawn from the bag, what is the probability that the marble will not be green?

- (A) $\frac{17}{25}$
- (B) $\frac{8}{25}$
- (C) $\frac{1}{8}$
- (D) $\frac{1}{17}$
- (E) $\frac{1}{25}$

Question 9

A bag contains marbles numbered 1 through 100.

If one marble is drawn at random, what is the probability that the number drawn will be divisible by 5?

- (A) $\frac{1}{100}$
- (B) $\frac{1}{80}$
- (C) $\frac{1}{20}$
- (D) $\frac{1}{10}$
- (E) $\frac{1}{5}$

Question 10

A bag contains marbles numbered 1 through 100. Zoe draws a marble. Then, without replacing the marble, she draws a second marble. If the first marble that she drew was numbered 5, what is the probability that the second marble drawn is a number from 1 to 10?

- (A) $\frac{1}{8}$
- (B) $\frac{1}{9}$
- (C) $\frac{1}{10}$
- (D) $\frac{1}{11}$
- (E) $\frac{1}{12}$

Math Lesson #2

Number Theory

- *Signed Numbers*
- *Even and Odd Numbers*
- *Prime Numbers*

Triumph College Admissions



Skill Lesson

Quiz Time!

A B C ☒ E



Hints!

A B C ☒ E



Answers!

A B C ☒ E



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Question 1

If $x^2 - 3x + 4 > x^2 + 3x + 4$, which of the following describes x ?

- (A) $x < 0$
- (B) $x = 0$
- (C) $x > 0$
- (D) $x = 2$
- (E) $x > 2$

Question 2

$|4 - 6| \times |6 - 4| =$

- (A) -4
- (B) 0
- (C) 4
- (D) 20
- (E) 100

Question 3

$6 - (-10) =$

- (A) 4
- (B) 16
- (C) -4
- (D) -16
- (E) 10

Question 4

$$8 + (-3) =$$

- (A) 11
- (B) -5
- (C) -11
- (D) 5
- (E) 2

Question 5

$$-12 - (-4) =$$

- (A) 16
- (B) 8
- (C) -8
- (D) -16
- (E) 3

Question 6

$$(-5) \times (-10) =$$

- (A) 2
- (B) -50
- (C) 50
- (D) -2
- (E) 15

Question 7

$$483 \div (-21) =$$

- (A) 27
- (B) 23
- (C) -23
- (D) -27
- (E) 13

Question 8

$$\frac{-10 \times 31}{5} =$$

- (A) -60
- (B) 62
- (C) -62
- (D) 60
- (E) 52

Question 9

$$\frac{-16 - 10}{13} =$$

- (A) 6
- (B) -26
- (C) 2
- (D) 26
- (E) -2

Question 10

$$-7[4 + (-9)] =$$

- (A) -91
- (B) 35
- (C) 91
- (D) -35
- (E) 17



Question 1

Simplify $|-3| + 2 - |-7|$.

- (A) -8
- (B) -6
- (C) -2
- (D) 6
- (E) 12

Question 2

Simplify $2|-5|$.

- (A) -10
- (B) -7
- (C) -3
- (D) 7
- (E) 10

Question 3

Simplify $|-8| - (-8)$.

- (A) -64
- (B) -16
- (C) 0
- (D) 16
- (E) 64

Question 4

Simplify $-|-6| + (-6)$.

- (A) -36
- (B) -12
- (C) 0
- (D) 12
- (E) 36

Question 5

On a number line, which of the following numbers is 4 units from 2?

- (A) -3
- (B) -2
- (C) 1
- (D) 2
- (E) 3

Question 6

Simplify $|-3| + |6|$.

- (A) -18
- (B) -9
- (C) -3
- (D) 3
- (E) 9

Question 7

Simplify $-2|-4| + (-3)$.

- (A) 11
- (B) 5
- (C) -5
- (D) -9
- (E) -11

Question 8

Simplify $\frac{-10}{2}$.

- (A) -12
- (B) -8
- (C) -5
- (D) 5
- (E) 8

Question 9

Simplify $\frac{-10}{-2}$.

- (A) -12
- (B) -8
- (C) -5
- (D) 5
- (E) 8

Question 10

Simplify $|7| - |-2|$.

- (A) 9
- (B) 5
- (D) -5
- (D) -9
- (E) -14



Question 1

If $a > 0$ and $b < 0$, which of the following expressions is always negative?

- (A) $a + b$
- (B) $a - b$
- (C) $a^2 + b^2$
- (D) $3ab$
- (E) $a(b + 2)$

Question 2

If x and y are both negative integers, which of the following will always be a positive integer?

- (A) $x + y$
- (B) $x - y$
- (C) $y - x$
- (D) xy
- (E) $\frac{x}{y}$

Question 3

Which of the following expressions is equivalent to $|r - s|$?

- (A) rs
- (B) $r - s$
- (C) $r + s$
- (D) $|r + s|$
- (E) $|s - r|$

Question 4

What is the value of $3 - 2|-4 + 3^2|$?

- (A) -23
- (B) -7
- (C) -1
- (D) 1
- (E) 5

Question 5

The temperature at 7 a.m. was -23 degrees Celsius.

By noon the temperature had risen 13 degrees Celsius before dropping 17.5 degrees Celsius by 8 p.m.

What was the temperature in degrees Celsius at 8 p.m.?

- (A) -27.5
- (B) -18.5
- (C) -4.5
- (D) 7.5
- (E) 18.5

Question 6

If $a < 0 < b$, then which of the following expressions is equal to $|a - b| + |a + b|$?

- (A) $2a + 2b$
- (B) $2a - 2b$
- (C) $2a$
- (D) $2b$
- (E) 0

Question 7

What is the value of $-3[2 - 5(7 - 9)]$?

- (A) -36
- (B) -12
- (C) 12
- (D) 24
- (E) 36

Question 8

Which of the following expressions could be used to find the distance between two numbers a and b on a number line?

- (A) $a + b$
- (B) $a - b$
- (C) ab
- (D) $|a + b|$
- (E) $|a - b|$

Question 9

What is the value of $|3(2 - 6)^2 - 50|$?

- (A) -102
- (B) -2
- (C) 2
- (D) 94
- (E) 98

Question 10

If $x < 0 < y$, then which of the following is not necessarily negative?

- (A) $x^3 y$
- (B) $2x - y$
- (C) $\frac{3x}{4y}$
- (D) $5(x + y)$
- (E) $xy + x$



Question 1

If $a + 3$ is an even integer, then a could be which of the following?

- (A) -4
- (B) -2
- (C) 0
- (D) 1
- (E) 2

Question 2

If r is an odd integer, which of the following represents an odd integer?

- (A) $r - 1$
- (B) $r + 1$
- (C) $r + 2$
- (D) $r + 3$
- (E) $r + 5$

Question 3

What is the sum of the even integers between 5 and 15?

- (A) 50
- (B) 49
- (C) 48
- (D) 40
- (E) 38

Question 4

What is the difference between the sum of the even integers between 5 and 20 and the sum of the odd integers between 5 and 20? Do not include the 5 or the 20 in your sums.

- (A) -5
- (B) -7
- (C) 0
- (D) 5
- (E) 7

Question 5

If the product of two consecutive positive even integers is 224, what is the smaller integer?

- (A) 12
- (B) 14
- (C) 16
- (D) 18
- (E) 20

Question 6

In a list of numbers, every odd term (beginning with the first) is 3, and every even term (beginning with the second) is $-1/3$. What is the product of the first six terms in the list?

- (A) -10
- (B) -6
- (C) -1
- (D) 1
- (E) 6

Question 7

What is the sum of the first 10 positive even integers?

- (A) 45
- (B) 55
- (C) 90
- (D) 110
- (E) 112

Question 8

If x is an odd integer greater than 3, what is the next greater even integer?

- (A) $2x$
- (B) x^2
- (C) $x + 3$
- (D) $x + 2$
- (E) $x + 1$

Question 9

$\frac{(N - 2)(N - 4)}{2}$ is an integer if N is equal to

- (A) 1 only
- (B) 2 only
- (C) 6 only
- (D) any odd integer
- (E) any even integer

Question 10

The integer 75 is to be expressed as the sum of n consecutive positive integers. The value of n could be which of the following?

- I. 2
- II. 3
- III. 5

- (A) I only
- (B) II only
- (C) III only
- (D) I and II
- (E) I, II, and III



Question 1

If a , b , and c are consecutive even integers and $a < b < c$, how much greater is $c - a$ than $b - a$?

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4

Question 2

If every digit of a whole number is either a 5 or a 9, then the number must be which of the following?

- (A) prime
- (B) odd
- (C) divisible by 5
- (D) divisible by 9
- (E) even

Question 3

Which of the following is equal to the sum of two consecutive odd integers?

- (A) 502
- (B) 503
- (C) 504
- (D) 505
- (E) 506

Question 4

If a is an odd integer and b is an even integer, which of the following must be an odd integer?

- (A) ab
- (B) a/b
- (C) b/a
- (D) $a + b/2$
- (E) $ab + a$

Question 5

The product of two consecutive positive integers is always divisible by which of the following?

- (A) 2
- (B) 3
- (C) 4
- (D) 5
- (E) It cannot be determined

Question 6

If $8/x$ is an odd integer, which of the following could be a value of x ?

- (A) $1/5$
- (B) $3/8$
- (C) $2/5$
- (D) $5/8$
- (E) $8/5$

Question 7

If a is an odd integer, which of the following is an odd integer?

- (A) $2a$
- (B) $3a$
- (C) $4a$
- (D) $a + 1$
- (E) $2a + 4$

Question 8

a , b , and c are consecutive odd integers with $a < b < c$.

How much greater is $b + c$ than $a + b$?

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4

Question 9

Which of the following sets of numbers has the property that the sum of any two numbers in the set is also a number in the set?

- I. The set of odd numbers.
- II. The set of prime numbers.
- III. The set of even numbers.

- (A) I only
- (B) II only
- (C) III only
- (D) I and III
- (E) I, II, and III

Question 10

$\frac{(N - 2)(N - 4) - 1}{2}$ is an integer, if the value of N is which of the following?

- (A) 1 only
- (B) 2 only
- (C) 3 only
- (D) any odd integer
- (E) any even integer



Question 1

What is the sum of the first six prime numbers?

- (A) 21
- (B) 29
- (C) 31
- (D) 41
- (E) 42

Question 2

What is the product of the two smallest prime numbers?

- (A) 2
- (B) 6
- (C) 10
- (D) 15
- (E) 35

Question 3

What is the largest prime number less than 52?

- (A) 37
- (B) 45
- (C) 47
- (D) 49
- (E) 51

Question 4

What is the prime factorization of 48?

- (A) $2 \times 2 \times 2 \times 3 \times 3$
- (B) $2 \times 2 \times 2 \times 2 \times 3$
- (C) $3 \times 4 \times 4$
- (D) $2 \times 3 \times 2 \times 4$
- (E) 6×8

Question 5

What is the first prime number after 79?

- (A) 81
- (B) 83
- (C) 85
- (D) 87
- (E) 89

Question 6

Which of the following is the square of a prime number?

- (A) 125
- (B) 64
- (C) 16
- (D) 8
- (E) 4

Question 7

The set Q consists of all numbers that are the sum of two consecutive prime numbers. For example, the number 60 is in Q because $29 + 31 = 60$. What is the smallest prime number in Q ?

- (A) 3
- (B) 5
- (C) 7
- (D) 8
- (E) 11

Question 8

What is the sum of the first ten prime numbers?

- (A) 101
- (B) 107
- (C) 109
- (D) 121
- (E) 129

Question 9

What is the largest prime number less than 50?

- (A) 37
- (B) 43
- (C) 45
- (D) 47
- (E) 49

Question 10

What is the sum of the two smallest prime numbers?

- (A) 3
- (B) 5
- (C) 7
- (D) 8
- (E) 10



Question 1

Which of the following is the sum of two different prime numbers?

- (A) 2
- (B) 3
- (C) 4
- (D) 6
- (E) 8

Question 2

What is the number of prime numbers between 1 and 10?

- (A) 0
- (B) 1
- (C) 2
- (D) 3
- (E) 4

Question 3

Which of the following is not a prime number?

- (A) 2
- (B) 3
- (C) 11
- (D) 17
- (E) 21

Question 4

What is the prime factorization of 300?

- (A) $2 \times 2 \times 3 \times 5 \times 5$
- (B) $3 \times 4 \times 25$
- (C) $2 \times 3 \times 5 \times 5$
- (D) $2 \times 3 \times 3 \times 5 \times 5$
- (E) 12×25

Question 5

If k is a prime number, then $k - 1$ could be which of the following numbers?

- (A) 4
- (B) 5
- (C) 9
- (D) 11
- (E) 14

Question 6

If r is a prime number greater than 3, which of the following is not a factor of $8r$?

- (A) $2r$
- (B) $4r$
- (C) r
- (D) $3r$
- (E) 8

Question 7

If 41 is the sum of three consecutive prime numbers, then what is the largest prime number?

- (A) 7
- (B) 11
- (C) 13
- (D) 17
- (E) 19

Question 8

Which of the following is the cube of a prime number?

- (A) 125
- (B) 64
- (C) 25
- (D) 16
- (E) 4

Question 9

What is the number of prime numbers between 1 and 30?

- (A) 6
- (B) 10
- (C) 12
- (D) 15
- (E) 29

Question 10

The set P consists of all numbers which are the product of three consecutive prime numbers. For example, the number 1,001 is in P, because $7 \times 11 \times 13 = 1,001$. What is the smallest number in P?

- (A) 0
- (B) 6
- (C) 30
- (D) 48
- (E) 105

Math Lesson #3

Percents

Triumph College Admissions



Skill Lesson

Quiz Time!

A B C ☒ E



Hints!

A B C ☒ E



Answers!

A B C ☒ E



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Question 1

If x is a positive number, then 40% of $10x$ equals

- (A) $2x$
- (B) $4x$
- (C) $6x$
- (D) $20x$
- (E) $40x$

Question 2

What is 0.4% of 1,200?

- (A) 480
- (B) 300
- (C) 48
- (D) 4.8
- (E) 0.48

Question 3

72 is 9% of what number?

- (A) 800
- (B) 648
- (C) 480
- (D) 80
- (E) 8

Question 4

A waiter in a restaurant received a tip of \$3.75 from a customer. The customer's bill for the meal was \$25.00. What percentage of the bill was the tip?

- (A) $33\frac{3}{4}\%$
- (B) 20%
- (C) $17\frac{1}{4}\%$
- (D) 15%
- (E) $6\frac{2}{3}\%$

Question 5

A class of 50 girls and 60 boys sponsored a basketball game. If 52% of the girls and 30% of the boys attended the game, what percentage of the class went to the game?

- (A) 55%
- (B) 44%
- (C) 41%
- (D) 40%
- (E) 35%

Question 6

In 1990, the price of milk was 70% of the price in 1999. In 1999, milk was \$2.10 a gallon. What was the cost in 1990?

- (A) \$0.14
- (B) \$0.63
- (C) \$1.40
- (D) \$1.47
- (E) \$1.80

Studyguide for the SAT Skill Quiz A: Percents

Question 7

The regular price of a ticket at the Herberger Theatre is \$8.50. The student discount is 20% off the regular price. Find the cost of a student ticket.

- (A) \$1.70
- (B) \$4.25
- (C) \$6.80
- (D) \$8.30
- (E) \$10.20

Question 8

What percent of 5 is 6?

- (A) 80%
- (B) 83%
- (C) 120%
- (D) 125%
- (E) 150%

Grid-in your answer here:

Question 9

During a week in December the Dow Jones Stock Market Average rose from 9,800 to 10,878. By what percentage did the Dow Jones Stock Market increase?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Grid-in your answer here:

Question 10

Lynn bought a coat on sale that was 20% off the original price. She had a coupon that got her 10% off of the sale price. What percentage did she get off the original cost of the coat?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9



Question 1

An auctioneer sold goods amounting to \$325,000. If the auctioneer kept 7% of the total for his fee, how much money did the auctioneer earn?

- (A) \$2,275
- (B) \$22,750
- (C) \$35,125
- (D) \$227,500
- (E) \$302,250

Question 2

A salesman is paid a yearly salary of \$35,000 plus a commission of 5% on total sales of \$204,000. Compute the salesman's total earnings for the year.

- (A) \$10,200
- (B) \$45,200
- (C) \$70,000
- (D) \$75,200
- (E) \$97,000

Question 3

A can of tennis balls regularly sells for \$3.95. They are on sale at 40% off. What is the amount of the discount?

- (A) \$0.16
- (B) \$1.58
- (C) \$2.37
- (D) \$3.55
- (E) \$5.53

Question 4

Last month, the Johnson family paid \$120 for heating. By lowering the thermostat setting, they reduced this month's bill to \$105. Find the percent of decrease compared to last month.

- (A) 5.5%
- (B) 12.5%
- (C) 15%
- (D) 85%
- (E) 87.5%

Question 5

The price of sofas at a store is \$500. Display models are sold at 64% off. What is the price of a display model?

- (A) \$120
- (B) \$180
- (C) \$320
- (D) \$436
- (E) \$820

Question 6

In 1992, the value of a painting was \$6,000. In 1996, the value was \$7,500. What was the percent of increase in value?

- (A) 15%
- (B) 20%
- (C) 25%
- (D) 125%
- (E) 150%

Question 7

During the women's NCAA Basketball Tournament, Jane made 13 successful free throws. This was 65% of her attempted free throws. How many free throws did Jane attempt?

- (A) 10
- (B) 12
- (C) 18
- (D) 20
- (E) 25

Question 8

Suppose a piece of fruit provides 90 units of vitamin C. If this is 150% of the total recommended daily allowance for vitamin C, find the total recommended daily allowance, to the nearest unit.

- (A) 37 units
- (B) 45 units
- (C) 60 units
- (D) 135 units
- (E) 240 units

Question 9

Nancy spent 6 vacation days at the beach. This was 30% of her total number of vacation days. How many days was her vacation?

- (A) 12
- (B) 20
- (C) 24
- (D) 36
- (E) 42

Question 10

Jane earned \$30.00 on Monday. This was 25% of her weekly earnings. How much does she earn per week?

- (A) \$150
- (B) \$120
- (C) \$75
- (D) \$55
- (E) \$25

Math Lesson #4

Number Sequences

Triumph College Admissions



Skill Lesson

Quiz Time!



Hints!



Answers!



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Question 1

If customers numbered 212 through 304 were served lunch between 12:30 and 1:30, how many customers were served during that time?

- (A) 91
- (B) 92
- (C) 93
- (D) 192
- (E) 193

Question 2

In the last hour on Election Day, voters 51,312 to 55,126 voted. How many voters voted during the last hour?

- (A) 3,813
- (B) 3,814
- (C) 3,815
- (D) 3,816
- (E) 3,817

Question 3

Joan begins reading at the top of page 15 and finishes at the bottom of page x . If the pages are numbered and read consecutively, and if there are no blank pages, how many pages did she read?

- (A) 15
- (B) 16
- (C) $x - 15$
- (D) $x - 14$
- (E) $x - 13$

Question 4

Peter washes cars on weekends by himself. On Saturday, he washed cars 1 through R . On Sunday, he washed cars $R + 1$ through S . If the cars are numbered and washed consecutively, how many cars did he wash on Sunday?

- (A) $R - S$
- (B) $S - R$
- (C) $S - R - 1$
- (D) $R - S + 1$
- (E) $S - R + 1$

Question 5

If a straight fence has 406 fence posts, how many fence posts are between the 50th post and the 406th post?

- (A) 354
- (B) 355
- (C) 356
- (D) 357
- (E) 358

Question 6

The sum of five consecutive integers is 120. What is the largest of the five integers?

- (A) 23
- (B) 24
- (C) 25
- (D) 26
- (E) 27

Question 7

The sum of two integers is 33. The difference between the two integers is 3. What is the smaller of the two integers?

- (A) 11
- (B) 15
- (C) 18
- (D) 32
- (E) 36

Question 8

The series $\{-2, 1, 1, -2, 1, 1, \dots\}$ consists of the alternating terms -2 , 1 , and 1 , as shown. What is the sum of the first 34 terms in the series?

- (A) -2
- (B) 0
- (C) 1
- (D) 2
- (E) 4

Question 9

The series $\{-2, 3, -2, 3, \dots\}$ consists of the alternating terms -2 and 3 , as shown. What is the sum of the first 11 terms in the series?

- (A) -2
- (B) 1
- (C) 2
- (D) 3
- (E) 11

Question 10

In a series of integers, each term (after the first term) is twice as large as the prior term. If the first term is 3 , what is the third term?

- (A) 3
- (B) 6
- (C) 9
- (D) 12
- (E) 27



Question 1

3, 4, 6, 9, 13, ...

What is the next number in the sequence above?

- (A) 14
- (B) 15
- (C) 16
- (D) 17
- (E) 18

Question 2

6, 10, 14, 18, ...

In the sequence above, each term after the first is 4 greater than the preceding term. Which of the following is not a term in the sequence?

- (A) 86
- (B) 94
- (C) 146
- (D) 168
- (E) 210

Question 3

A deck of cards is dealt one card at a time to 5 players. Player 1 gets the first card, player 2 gets the second card, and so forth, until each player has one card. The next card is dealt to player 1 and the pattern continues.

Which player receives the 28th card?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5

Question 4

-1, 1, -1, 1, -1, 1, ...

In the above sequence, what is the sum of the first 501 numbers?

- (A) -2
- (B) -1
- (C) 0
- (D) 1
- (E) 2

Question 5

2, 5, 8, 11, 14, ...

In the sequence above, what is the 200th term?

- (A) 605
- (B) 602
- (C) 600
- (D) 599
- (E) 596

Question 6

The sum of three consecutive odd integers is 81. What is the smallest integer of the three?

- (A) 25
- (B) 26
- (C) 27
- (D) 29
- (E) 31

Question 7

For each customer served, Ricki gets paid a \$0.25 commission. Last Friday, Ricki served customer numbered 35 through 60. How much was her Friday commission?

- (A) \$27.00
- (B) \$26.00
- (C) \$25.00
- (D) \$6.50
- (E) \$6.25

Question 8

In a theme park, the most popular roller coaster has seats numbered 1 through 26. If each seat holds 2 people, what is the total capacity of the roller coaster?

- (A) 25
- (B) 26
- (C) 50
- (D) 52
- (E) 54

Question 9

What is the unit digit of 3^{86} ?

- (A) 0
- (B) 1
- (C) 3
- (D) 7
- (E) 9

Question 10

1, -1, 1, 1, -1, 1, 1, -1, 1, ...

What is the sum of the first 30 terms of the above sequence?

- (A) 30
- (B) 10
- (C) 9
- (D) 8
- (E) 0



Question 1

If customers numbered 273 through 408 were served lunch between 12:30 and 1:30, how many customers were served during that time?

- (A) 135
- (B) 136
- (C) 137
- (D) 235
- (E) 236

Question 2

Joan begins reading at the top of page 35 and finishes at the bottom of page p . If the pages are numbered and read consecutively, and if there are no blank pages, how many pages did she read?

- (A) 35
- (B) 36
- (C) $p - 35$
- (D) $p - 34$
- (E) $p - 33$

Question 3

If a straight fence has 327 fence posts, how many fence posts are between the 38th post and the 327th post?

- (A) 290
- (B) 289
- (C) 288
- (D) 287
- (E) 286

Question 4

The sum of five consecutive integers is 640. What is the largest of the five integers?

- (A) 126
- (B) 127
- (C) 128
- (D) 129
- (E) 130

Question 5

The series $\{-2, 2, 1, -2, 2, 1, \dots\}$ consists of the alternating terms -2 , 2 , and 1 , as shown. What is the sum of the first 34 terms in the series?

- (A) 1
- (B) 9
- (C) 11
- (D) 13
- (E) 34

Question 6

3, 4, 8, 17, 33, ...

What is the next number in the sequence above?

- (A) 34
- (B) 39
- (C) 50
- (D) 58
- (E) 68

Question 7

A deck of cards is dealt one card at a time to 5 players. Player 1 gets the first card, player 2 gets the second card, and so forth, until each player has one card. The next card is dealt to player 1 and the pattern continues.

Which player receives the 20th card?

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5

Question 8

What is the unit digit of 3^{43} ?

- (A) 0
- (B) 1
- (C) 3
- (D) 7
- (E) 9

Question 9

1, 3, 5, 7, 9, ...

In the sequence above, what is the 200th term?

- (A) 397
- (B) 398
- (C) 399
- (D) 400
- (E) 401

Question 10

1, -1, 1, -1, 1, -1, 1, ...

What is the sum of the first 30 terms of the above sequence?

- (A) 30
- (B) 10
- (C) 9
- (D) 8
- (E) 0

Math Lesson #5

Sets

Triumph College Admissions



Skill Lesson

Quiz Time!



Hints!



Answers!



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Question 1

If $A = \{1, 2, 3, 4, 5, 6\}$ and $B = \{4, 5, 6, 7, 8, 9\}$ then what is $A \cap B$?

- (A) $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
- (B) $\{1, 2, 3, 7, 8, 9\}$
- (C) $\{4\}$
- (D) $\{4, 5, 6\}$
- (E) $\{4, 5\}$

Question 2

If $A = \{1, 2, 3, 4, 5, 6\}$ and $B = \{4, 5, 6, 7, 8, 9\}$ then what is $A \cup B$?

- (A) $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
- (B) $\{1, 2, 3, 7, 8, 9\}$
- (C) $\{4\}$
- (D) $\{4, 5, 6\}$
- (E) $\{4, 5\}$

Question 3

If $A = \{1, 3, 5, 7, 9, 15\}$, $B = \{3, 6, 9, 12, 15\}$ and $C = \{0, 5, 10, 15\}$ then what is $(A \cup B) \cup C$?

- (A) $\{1, 3, 5, 6, 7, 9, 12, 15\}$
- (B) $\{3, 15\}$
- (C) $\{0, 3, 5, 6, 9, 10, 12, 15\}$
- (D) $\{0, 1, 3, 5, 6, 7, 9, 10, 12, 15\}$
- (E) $\{15\}$

Question 4

If $A = \{1, 3, 5, 7, 9, 15\}$, $B = \{3, 6, 9, 12, 15\}$ and $C = \{0, 5, 10, 15\}$ then what is $(A \cap B) \cap C$?

- (A) $\{1, 3, 5, 6, 7, 9, 12, 15\}$
- (B) $\{3, 15\}$
- (C) $\{0, 3, 5, 6, 9, 10, 12, 15\}$
- (D) $\{0, 1, 3, 5, 6, 7, 9, 10, 12, 15\}$
- (E) $\{15\}$

Studyguide for the SAT Skill Quiz A: Sets

Question 5

If $A = \{1, 3, 5, 7, 9, 15\}$, $B = \{3, 6, 9, 12, 15\}$ and $C = \{1, 6, 9, 10, 11\}$ then what is $(A \cup B) \cap C$?

- (A) $\{1, 6, 9\}$
- (B) $\{1, 3, 5, 6, 7, 9, 12, 15\}$
- (C) $\{1, 3, 5, 6, 7, 9, 10, 11, 12, 15\}$
- (D) $\{1, 3, 5, 6, 7, 9, 15\}$
- (E) $\{1, 3, 9, 15\}$

Question 6

If $A = \{1, 3, 5, 7, 9, 15\}$, $B = \{3, 6, 9, 12, 15\}$ and $C = \{1, 6, 9, 10, 11\}$ then what is $A \cup (B \cap C)$?

- (A) $\{1, 6, 9\}$
- (B) $\{1, 3, 5, 6, 7, 9, 12, 15\}$
- (C) $\{1, 3, 5, 6, 7, 9, 10, 11, 12, 15\}$
- (D) $\{1, 3, 5, 6, 7, 9, 15\}$
- (E) $\{1, 3, 9, 15\}$

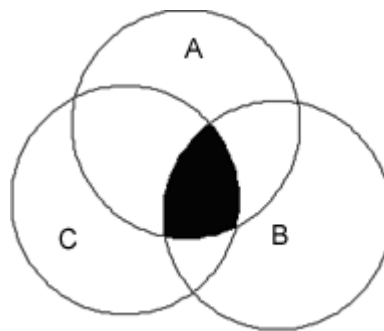
Question 7

If $A = \{1, 3, 5, 7, 9, 15\}$, $B = \{3, 6, 9, 12, 15\}$ and $C = \{1, 6, 9, 10, 11\}$ then what is $A \cap (B \cup C)$?

- (A) $\{1, 6, 9\}$
- (B) $\{1, 3, 5, 6, 7, 9, 12, 15\}$
- (C) $\{1, 3, 6, 9, 10, 11, 12, 15\}$
- (D) $\{1, 3, 5, 6, 7, 9, 15\}$
- (E) $\{1, 3, 9, 15\}$

Question 8

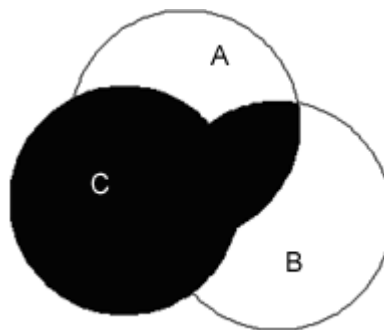
Which answer choice indicates the shown Venn diagram?



- (A) $(A \cap B) \cup C$
- (B) $(A \cap B) \cap C$
- (C) $A \cup (B \cap C)$
- (D) $A \cap (B \cap C)$
- (E) $(A \cup B) \cap C$

Question 9

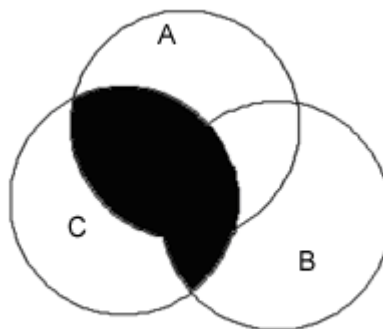
Which answer choice indicates the shown Venn diagram?



- (A) $(A \cap B) \cup C$
- (B) $(A \cap B) \cap C$
- (C) $A \cup (B \cup C)$
- (D) $A \cup (B \cap C)$
- (E) $(A \cup B) \cap C$

Question 10

Which answer choice indicates the shown Venn diagram?



- (A) $(A \cap B) \cup C$
- (B) $(A \cap B) \cap C$
- (C) $A \cup (B \cup C)$
- (D) $A \cup (B \cap C)$
- (E) $(A \cup B) \cap C$



Question 1

The notation $n(A)$ is used to indicate the number of elements in set A. For example if $A = \{1, 2, 3, 4, 7, 9\}$ then $n(A) = 6$. Use this information to solve the following.

If $R = \{1, 2, 3, 5, 7\}$, $S = \{2, 4, 6, 8, 10\}$ and $T = \{0, 3, 6\}$, what is $n(R)$?

- (A) $\{1, 2, 3, 5, 7\}$
- (B) 4
- (C) 7
- (D) 5
- (E) 0

Question 2

The notation $n(A)$ is used to indicate the number of elements in set A. For example if $A = \{1, 2, 3, 4, 7, 9\}$ then $n(A) = 6$. Use this information to solve the following.

If $R = \{1, 2, 3, 5, 6\}$, $S = \{2, 4, 6, 8, 10\}$ and $T = \{0, 3, 6\}$, what is $n(R \cup S)$?

- (A) 10
- (B) 8
- (C) 6
- (D) 4
- (E) 2

Question 3

The notation $n(A)$ is used to indicate the number of elements in set A. For example if $A = \{1, 2, 3, 4, 7, 9\}$ then $n(A) = 6$. Use this information to solve the following.

If $R = \{1, 2, 3, 5, 7\}$, $S = \{2, 4, 6, 8, 10\}$ and $T = \{0, 3, 7\}$, what is $n(R \cap T)$?

- (A) 10
- (B) 8
- (C) 6
- (D) 4
- (E) 2

Studyguide for the SAT Skill Quiz B: Sets

Question 4

The notation $n(A)$ is used to indicate the number of elements in set A . For example if $A = \{1, 2, 3, 4, 7, 9\}$ then $n(A) = 6$. Use this information to solve the following.

If $R = \{1, 2, 3, 5, 7\}$, $S = \{2, 4, 6, 8, 10\}$ and $T = \{0, 3, 7\}$, what is $n(R) + n(S) + n(T)$?

- (A) 3
- (B) 5
- (C) 7
- (D) 11
- (E) 13

Question 5

If G represents the set of people with green eyes and B represents the set of people with brown hair which of the following sets describes represents $G \cap B$.

- (A) {people with green eyes or brown hair}
- (B) {people with green eyes only}
- (C) {people with brown hair only}
- (D) {people with green eyes and brown hair}
- (E) \emptyset

Question 6

If G represents the set of people with green eyes and B represents the set of people with brown hair which of the following sets describes represents $G \cup B$.

- (A) {people with green eyes or brown hair}
- (B) {people with green eyes only}
- (C) {people with brown hair only}
- (D) {people with green eyes and brown hair}
- (E) \emptyset

Question 7

A survey was conducted among seniors at Central High School for the cafeteria. The survey found that 50 seniors liked pizza for lunch, 90 seniors liked hamburgers for lunch and 20 seniors liked both hamburgers and pizza for lunch. How many seniors only liked pizza for lunch?

- (A) 140
- (B) 120
- (C) 70
- (D) 50
- (E) 30

Question 8

A survey was conducted among seniors at Central High School for the cafeteria. The survey found that 50 seniors liked pizza for lunch, 90 seniors liked hamburgers for lunch and 20 seniors liked both hamburgers and pizza for lunch. How many seniors liked pizza or hamburgers for lunch?

- (A) 140
- (B) 120
- (C) 70
- (D) 50
- (E) 30

Question 9

Yesterday Officer Jones issued tickets to 16 drivers. She issued 12 tickets for speeding and 7 tickets for driving while using a cell phone. How many drivers received tickets for both speeding and driving using a cell phone?

- (A) 3
- (B) 4
- (C) 5
- (D) 9
- (E) 19

Question 10

A survey of 100 students who liked either cola flavored or orange flavored soda was taken at Central High School. 60 of these students liked cola flavored sodas and 55 liked orange flavored sodas. How many students like both cola flavored and orange flavored sodas?

- (A) 5
- (B) 15
- (C) 40
- (D) 45
- (E) 115



Question 1

If $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and $B = \{\text{prime numbers}\}$ then what is $A \cap B$?

- (A) $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
- (B) $\{1, 3, 5, 7, 9\}$
- (C) $\{1, 2, 3, 5, 7\}$
- (D) $\{2, 3, 5, 7, 9\}$
- (E) $\{2, 3, 5, 7\}$

Question 2

If $A = \{1, 3, 5\}$ and $B = \{3, 4, 6, 8\}$ then what is $A \cup B$?

- (A) $\{1, 4, 5, 6, 8\}$
- (B) $\{1, 3, 4, 5, 6, 8\}$
- (C) $\{3\}$
- (D) $\{4, 6, 8\}$
- (E) \emptyset

Question 3

If $A = \{1, 3, 5, 7, 9, 15\}$, $B = \{3, 6, 9, 12, 15\}$ and $C = \{0, 5, 10, 15\}$ then what is $(A \cap B) \cup C$?

- (A) $\{1, 3, 5, 6, 7, 9, 12, 15\}$
- (B) \emptyset
- (C) $\{0, 3, 5, 9, 10, 15\}$
- (D) $\{0, 1, 3, 5, 6, 7, 9, 10, 12, 15\}$
- (E) $\{15\}$

Question 4

If $A = \{1, 3, 5, 7, 9\}$, $B = \{2, 4, 6, 8\}$ then what is $A \cap B$?

- (A) $\{1, 2, 3, 4, 5, 6, 7, 8, 9\}$
- (B) $\{1, 3, 5, 7, 9\}$
- (C) $\{2, 4, 6, 8\}$
- (D) $\{1, 2, 3, 4, 5\}$
- (E) \emptyset

Studyguide for the SAT Skill Quiz C: Sets

Question 5

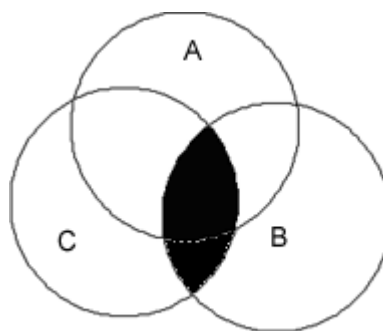
If G represents the set of people having green eyes and R represents the set of people having red hair then which of the following best describes $G \cap R$?

- (A) {people with green eyes only}
- (B) {people with red hair only}
- (C) {people with green eyes and red hair}
- (D) {people with red eyes and green hair}
- (E) {people with green eyes or red hair}

Question 6

Which answer choice indicates the shown Venn diagram?

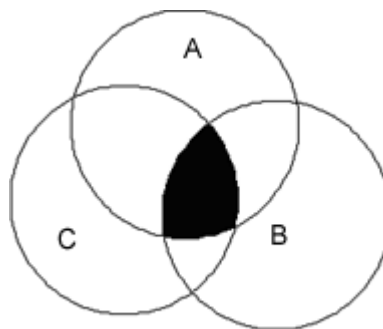
- (A) $A \cap B$
- (B) $(A \cap B) \cap C$
- (C) $B \cup C$
- (D) $B \cap C$
- (E) $(A \cup B) \cap C$



Question 7

Which answer choice indicates the shown Venn diagram?

- (A) $(A \cap B) \cup C$
- (B) $(A \cup B) \cap C$
- (C) $A \cup (B \cap C)$
- (D) $A \cup (B \cap C)$
- (E) $(A \cap B) \cap C$



Question 8

The notation $n(A)$ is used to indicate the number of elements in set A . For example if $A = \{1, 2, 3, 4, 7, 9\}$ then $n(A) = 6$. Use this information to solve the following.

If $R = \{1, 2, 3, 5, 7\}$, $S = \{2, 4, 6, 8, 10\}$ and $T = \{0, 3, 6\}$, what is $n(R \cup (S \cup T))$?

- (A) $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 10\}$
- (B) 3
- (C) 5
- (D) 9
- (E) 10

Question 9

A survey was conducted among seniors at Central High School for the cafeteria. The survey found that 80 seniors liked pizza for lunch, 55 seniors liked hamburgers for lunch and 40 seniors liked both hamburgers and pizza for lunch. How many seniors liked pizza or hamburgers for lunch?

- (A) 175
- (B) 135
- (C) 95
- (D) 40
- (E) 15

Question 10

For a week Officer Jones issued tickets to 43 drivers. She issued 35 tickets for speeding and 15 tickets for driving while using a cell phone. How many drivers received tickets for both speeding and driving using a cell phone?

- (A) 93
- (B) 78
- (C) 50
- (D) 7
- (E) 0

Math Lesson #6

Functions

- *Function Substitution*
- *Substitution*
- *Functions*

Triumph College Admissions



Skill Lesson

Quiz Time!

A B C ☒ E



Hints!

A B C ☒ E



Answers!

A B C ☒ E



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Question 1 refers to the following definition.

$$\boxed{n} = n^2 + 2n - 3$$

For example,

$$\boxed{4} = 4^2 + 2(4) - 3 = 16 + 8 - 3 = 21$$

Question 1

$$\boxed{5} =$$

(A) 35

(D) 17

(B) 32

(E) 12

(C) 23

Question 2 refers to the following definition.

$$\boxed{n} = n^2 + 2n - 3$$

For example,

$$\boxed{4} = 4^2 + 2(4) - 3 = 16 + 8 - 3 = 21$$

Question 2

$$\boxed{x^2} =$$

(A) $x^2 + 2x - 3$


(D) $3x^3 - 3$

(B) $x^4 + 2x - 3$

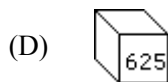
(E) $3x^6 - 3$

(C) $x^4 + 2x^2 - 3$

Question 3

If  represents x^2 , then the area of a square with

sides of length 25 is represented by



Question 4 refers to the following definition.

n is an integer greater than 1.

F_n denotes the smallest positive integer factor of n not equal to 1.

Question 4

$F_{24} =$

(A) 2

(B) 3

(C) 4

(D) 5

(E) 6

Studyguide for the SAT Skill Quiz A: Function Substitution

Question 5 refers to the following definition.

n is an integer greater than 1.

F_n denotes the smallest positive integer factor of n not equal to 1.

Question 5

$$F_{51} =$$

- (A) 2
- (B) 3
- (C) 11
- (D) 17
- (E) 51

Question 6

The symbol $\boxed{x} = x^2 - 2x$

What is the value of $\boxed{5}$?

- (A) 25
- (B) 15
- (C) 10
- (D) 5
- (E) -5

Question 7

The symbol $\boxed{x} = x^2 - 2x$

What is the value of $\boxed{6} - \boxed{3}$?

- (A) 3
- (B) 9
- (C) 21
- (D) 27
- (E) 33

Question 8

If $x \% y = 2x + y$, what is the value of $3 \% 2$?

- (A) 5
- (B) 6
- (C) 7
- (D) 8
- (E) 10

Question 9

If $a @ b = ab + a$, which of the following is equal to 20?

- (A) $4 @ 2$
- (B) $5 @ 3$
- (C) $10 @ 2$
- (D) $3 @ 5$
- (E) $2 @ 10$

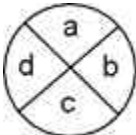
Question 10


If $\boxed{a} = \sqrt{a} - 1$, what is the value of $\boxed{100}$?

- (A) 9
- (B) 10
- (C) 99
- (D) 100
- (E) 101



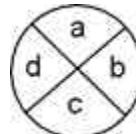
Question 1



Given:  = $ac - bd$

What is the value of  ?

- (A) 23
- (B) 7
- (C) 0
- (D) -7
- (E) -23

Question 2

Given:  = $ac - bd$

What is the value of  + 

- (A) -5
- (B) 5
- (C) 17
- (D) 23
- (E) 33

Question 3

Given: $a \$ b = 3a - 2b$

What is the value of $5 \$ 3$?

- (A) 2
- (B) 8
- (C) 9
- (D) 19
- (E) 24

Question 4

Given: $a \$ b = 3a - 2b$

What is the value of $(3 \$ 2) + (4 \$ 1)$?

- (A) $5 \$ 1$
- (B) $7 \$ 3$
- (C) $6 \$ 2$
- (D) $2 \$ 6$
- (E) $3 \$ 7$

Question 5

Given: $a \# b = a + b + 2$

Evaluate $5 \# 1$.

- (A) 5
- (B) 6
- (C) 7
- (D) 8
- (E) 9

Question 6

If $a \# b = a + b + 2$, which of the following must be true?

- I. $a \# b = b \# a$
- II. $2(a \# b) = 2a \# 2b$
- III. $a \# (b \# c) = (a \# b) \# c$

- (A) I only
- (B) II only
- (C) III only
- (D) I and II
- (E) I and III

Question 7

Let

a	b
c	d

 be defined as $ad + cb$. If $x =$

1	3
4	2

,

then what is the value of

1	3
5	x

?

- (A) 9
- (B) 14
- (C) 17
- (D) 24
- (E) 29

Question 8

Let

a	b
c	d

 be defined as $ad + cb$ and

2	5
3	x

 $= 27$.

What is the value of x ?

- (A) 6
- (B) 7.5
- (C) 8
- (D) 12
- (E) 22

Question 9

Let $a \# b = 2a + 3b$. What is the value of $x \# x$?

- (A) $5x^2$
- (B) $6x^2$
- (C) $5x$
- (D) $6x$
- (E) $10x$

Question 10

Let $a \# b = 3a + b$. What is the value of $x \# -x$?

- (A) $-2x$
- (B) $2x$
- (C) 0
- (D) $-3x^2$
- (E) $3x^2$



Question 1

Given: $*a = a^2 + 1$

Which of the following is equal to 82?

- (A) $*81$
- (B) $*10$
- (C) $*9$
- (D) $*8$
- (E) $*6$

Question 2

Given: $*a = a^2 + 1$

$*10 - *8$ is equal to which of the following?

- (A) $*6$
- (B) $*6 - 1$
- (C) $*2$
- (D) $*6 + 1$
- (E) $*2 + 1$

Question 3

Let $@x$ be defined for any positive integer as the number obtained by writing the digits of x in reverse order.

Example: $@3 = 3$ and $@179 = 971$

$@13 - @14$ is equal to which of the following?

- (A) 1
- (B) 10
- (C) 27
- (D) -10
- (E) -1

Studyguide for the SAT Skill Quiz C: Function Substitution

Question 4

Let $@x$ be defined for any positive integer as the number obtained by writing the digits of x in reverse order.

Example: $@3 = 3$ and $@179 = 971$

$@123 - @421$ is equal to which of the following?

- (A) $@197$
- (B) $@971$
- (C) $@791$
- (D) $@298$
- (E) $@892$

Question 5

If $x \# y = 2xy$, what is the value of $4 \# 3$?

- (A) 7
- (B) 11
- (C) 12
- (D) 24
- (E) 26

Question 6

Given: $a \# b = 2ab$

Evaluate $5 \# 3$.

- (A) 5
- (B) 15
- (C) 24
- (D) 30
- (E) 60

Question 7

If $a \# b = 2ab$, which of the following must be true.

- I. $a \# b = b \# a$
- II. $2(a \# b) = 2a \# 2b$
- III. $a \# (b \# c) = (a \# b) \# c$

- (A) I only
- (B) II only
- (C) III only
- (D) I and II
- (E) I and III

Question 8

Let $a \# b = 2ab$. What is the value of $3x \# x$?

- (A) $5x^2$
- (B) $6x^2$
- (C) $5x$
- (D) $6x$
- (E) $10x$

Question 9

Let $a \# b = 3ab$. What is the value of $xy \# x$?

- (A) $3x^2y$
- (B) $6xy$
- (C) $3abx^2y$
- (D) $4x + y$
- (E) $10x$

Question 10

Let $a \# b = a^b$. What is the value of $3x \# 3$?

(A) $6x$

(B) $9x$

(C) $9x^3$

(D) $27x$

(E) $27x^3$



Question 1

What is the value of $x^2 - 2x + 3$, when $x = 3$?

- (A) 3
- (B) 4
- (C) 6
- (D) 15
- (E) 24

Question 2

Given $f(x) = (x + 2)(x - 4) + 2x$, find $f(-4)$.

- (A) -24
- (B) -8
- (C) 0
- (D) 8
- (E) 16

Question 3

If $G(x) = 100x - 5$, find $G(10)$.

- (A) 95
- (B) 105
- (C) 500
- (D) 995
- (E) 1,005

Question 4

Given $r(x) = 2x + 1$ and $s(x) = 3x - 4$, find $r(3) + s(2)$.

- (A) 9
- (B) 10
- (C) 14
- (D) 17
- (E) 18

Question 5

If $p(x) = 2x + 1$ and $r(x) = x^2$, what is $p(r(3))$?

- (A) 13
- (B) 16
- (C) 19
- (D) 49
- (E) 53

Question 6

If $g(x) = x^2 + 2x + 3$, find $g(-3)$.

- (A) -12
- (B) 0
- (C) 3
- (D) 6
- (E) 18

Question 7

Evaluate $4a^2b^3$, if $a = 3$ and $b = 2$.

- (A) 24
- (B) 144
- (C) 216
- (D) 288
- (E) 1,152

Question 8

What is the value of $(x + y)(x^2 - xy + 4)$, when $x = 2$ and $y = 3$?

- (A) -5
- (B) -2
- (C) 1
- (D) 2
- (E) 10

Studyguide for the SAT Skill Quiz A: Substitution

Question 9

If $y = |x| - 2x - x^2$, what is the value of y when $x = -2$?

- (A) -6
- (B) -2
- (C) 1
- (D) 2
- (E) 6

Question 10

If $F(x) = \frac{x+3}{x-2}$, find $F(1)$.

- (A) -7
- (B) -4
- (C) 0
- (D) 1
- (E) 7



Question 1

If $x = -5$, then $-x^2 - x - 9 = ?$

- (A) -39
- (B) -29
- (C) 6
- (D) 11
- (E) 21

Question 2

If $a = -4.5$, then $a^3 - 5a^2 + 15 = ?$

- (A) -582.375
- (B) -400.125
- (C) -177.375
- (D) 4.875
- (E) 430.125

Question 3

If $r = 2$, what is the value of $15r - \left(\frac{20}{r}\right)r$?

- (A) -1,470
- (B) -720
- (C) -170
- (D) -70
- (E) 10

Question 4

If $a = 2$, $b = -4$, and $c = 0.5$, then what is the value of $\frac{a(b - 6c)}{b^2c}$?

- (A) -1.75
- (B) -1.25
- (C) -0.25
- (D) 0.25
- (E) 1.25

Question 5

If $b = 12$ and $c = 13$, then $\sqrt{c^2 - b^2} = ?$

- (A) 1
- (B) 5
- (C) 18
- (D) 25
- (E) 313

Question 6

The formula $P = 15x - 1000$ gives the profit in dollars of a toy company when it sells x number of teddy bears. If the company sells 150 teddy bears, what is the company's profit in dollars?

- (A) -12,750
- (B) 66.67
- (C) 1,250
- (D) 2,250
- (E) 3,250

Question 7

The weekly profit function of Hal's Hamburger Hut is

$P(x) = 2x^2 - 150x - 2000$ where x is the number of hamburgers sold in a week. If 100 hamburgers are sold in a week, what is Hal's weekly profit in dollars?

- (A) 30
- (B) 3,000
- (C) 7,500
- (D) 23,000
- (E) 53,000

Question 8

If $y = 2x^2 - x$, which of the following values of x will result in the largest value of y ?

- (A) -2
- (B) -1
- (C) 0
- (D) 1
- (E) 2

Question 9

If $b = 9 - 2a + a^2$, then which of the following values of a results in the smallest value of b ?

- (A) -2
- (B) -1
- (C) 0
- (D) 1
- (E) 2

Question 10

Given that $m = 3$, $n = -8$, and $p = 12$, evaluate $m + 5(n - np)$.

- (A) -4,160
- (B) -517
- (C) 3
- (D) 443
- (E) 704



Question 1

If $a = -20$ and $b = -1$, then

$$\frac{2}{3}|a - 5b| = ?$$

- (A) 25.67
- (B) 16.67
- (C) 15.67
- (D) 15
- (E) 10

Question 2

If $r = 9$, $s = 5$, and $t = -1$, then what is the value of

$$r^2 - 2[s + r(5 - t)]?$$

- (A) -87
- (B) -59
- (C) -37
- (D) -31
- (E) -1

Question 3

If $x = 4$ and $y = -1$, then $y - xy^3 = ?$

- (A) 5
- (B) 3
- (C) -5
- (D) -13
- (E) -65

Question 4

If $a = \frac{1}{3}$, then $\frac{1}{a^2} = ?$

- (A) $\frac{1}{9}$
- (B) $\frac{1}{6}$
- (C) 6
- (D) 9
- (E) It is undefined.

Question 5

If $x = 5$, then evaluate $\frac{9 - x^2}{3 - x}$.

- (A) 8
- (B) $\frac{4}{3}$
- (C) $\frac{1}{3}$
- (D) -8
- (E) -12.5

Question 6

For which value of x is the expression $\frac{x}{x+1}$ undefined?

- (A) -2
- (B) -1
- (C) 0
- (D) 1
- (E) 2

Question 7

For what non-negative value of x is the expression

$\frac{x-1}{x^2-16}$ undefined?

- (A) 1
- (B) 4
- (C) 8
- (D) 16
- (E) 256

Question 8

Given that $f(x) = 3x - 9$ and $g(x) = \frac{1}{2}x + 5$,
what is the value of $f(0) - g(8)$?

- (A) -18
- (B) -9
- (C) -8
- (D) 0
- (E) 18

Question 9

Given that $p = \frac{1}{v} + 4$, what is the value of p when $v = \frac{1}{4}$?

- (A) -3.75
- (B) 0.125
- (C) 4.25
- (D) 8
- (E) 16

Question 10

If $x = 9$ and $y = 2$, then $3x^y = ?$

- (A) 14
- (B) 54
- (C) 84
- (D) 243
- (E) 729



Question 1

Given $f(x) = 3x + 4$, what is the value of $f(4)$?

- (A) 4
- (B) 7
- (C) 16
- (D) $12x + 16$
- (E) $12x + 4$

Question 2

Given $g(x) = x^2 - 2x + 5$, what is the value of $g(a)$?

- (A) a
- (B) $a^2 - 2a + 5$
- (C) $-a + 5$
- (D) $ax^2 - 2ax + 5a$
- (E) $ax^2 - 2ax + 5$

Question 3

Given $h(x) = x^2 + 3x - 7$, what is the value of $h(x + 1)$?

- (A) $x^2 + 5x - 3$
- (B) $x^2 + 3x - 6$
- (C) $x^2 + 3x - 3$
- (D) $x^2 + 5x - 5$
- (E) $x^2 + 3x - 5$

Question 4

Given $f(x) = x + 2$ and $g(x) = x^2$, what is the value of $f(g(x))$?

- (A) $x^3 + 2x^2$
- (B) $x + 2$
- (C) $x^2 + 2$
- (D) $x^2 + 4x + 4$
- (E) $x^2 + 4$

Question 5

Given $f(x) = x + 5$ and $g(x) = x^2 + 1$, what is the value of $g(f(x))$?

- (A) $x^2 + 26$
- (B) $x^2 + 6$
- (C) $x^2 + x + 6$
- (D) $x^2 + 10x + 26$
- (E) $x^3 + 5x^2 + x + 5$

Question 6

Given the function $f = \frac{3gf}{r}$, what is the value of r ?

- (A) $3gf^2$
- (B) $3g$
- (C) $\frac{1}{3g}$
- (D) $\frac{3}{f}$
- (E) $\frac{3f^2}{f}$

Question 7

Which of the following equations has y varying directly as x squared?

(A) $y = \frac{1}{x^2}$

(B) $y = 2x$

(C) $1 = x^2 y$

(D) $y = 3x^2$

(E) $y = \frac{5}{x^2}$

Question 8

Which of the following equations has y varying inversely as z cubed?

(A) $yz^3 = 2$

(B) $y = 3z^3$

(C) $3y = z^3$

(D) $4 = z^3 / y$

(E) $y^3 = 4/z$

Question 9

Which of the following has y varying directly as x cubed and inversely as z squared?

(A) $y = 4x^3 z^2$

(B) $x^3 y = 4z^2$

(C) $1 = \frac{3x^3}{yz^2}$

(D) $\frac{2}{z} = \frac{5y}{x^3}$

(E) $x^3 = \frac{5y}{2z^2}$

Question 10

If $g(x) = 2x^3 - x + 5$, then $g(2) =$

- (A) 6
- (B) 7
- (C) 11
- (D) 19
- (E) 20

Math Lesson #7


Equations and Inequalities

- *Basic Linear Equations*
- *Special Linear Equations*
- *Rational Linear Equations*
- *Inequalities*
- *Factor and Expression*
- *Proportions*
- *Cancel Common Terms*
- *Quadratic Inequalities*

Triumph College Admissions

 **Skill Lesson**

Quiz Time! 
☐ A ☐ B ☐ C ☒ D ☐ E

Hints! 
☐ A ☐ B ☐ C ☒ D ☐ E

Answers! 
☐ A ☐ B ☐ C ☒ D ☐ E

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Question 1

Solve for x , if $x + 27 = 34$.

- (A) 6
- (B) 7
- (C) 8
- (D) 51
- (E) 61

Question 2

Solve for x , if $2x - 15 = 37$.

- (A) 6
- (B) 11
- (C) 26
- (D) 52
- (E) 104

Question 3

Solve for x , if $\frac{x}{3} = 9$.

- (A) 3
- (B) 6
- (C) 9
- (D) 12
- (E) 27

Question 4

If $x + 2 = 11$, then $x + 5 = ?$

- (A) 9
- (B) 13
- (C) 14
- (D) 16
- (E) 18

Question 5

If $235 - x = 412$, then $x = ?$

- (A) -187
- (B) -177
- (C) 177
- (D) 187
- (E) 647

Question 6

For what value of x is $2(x + 3) - 4x = 12$?

- (A) -9
- (B) -3
- (C) 1
- (D) 3
- (E) 9

Question 7

Solve for x , if $5(x + 1) - 3(2x + 4) = 2(x + 7)$.

- (A) -7
- (B) $-2/3$
- (C) 1
- (D) 7
- (E) 21

Question 8

For what value of x is $43 + x = -22$ true?

- (A) -65
- (B) -21
- (C) 12
- (D) 21
- (E) 65

Question 9

Solve for x , if $7x - 3(x + 5) = 45$.

- (A) 3
- (B) 7.5
- (C) 10
- (D) 12.5
- (E) 15

Question 10

Solve for x , if $(2x + 3) - (2x + 1) = x$.

- (A) $-4/3$
- (B) $-2/3$
- (C) $4/3$
- (D) 2
- (E) 4



Question 1

If $3x + 6 = 16$, then $x - 1/3 = ?$

- (A) 2
- (B) 3
- (C) 6
- (D) 9
- (E) 12

Question 2

The product of 5, 6, and y is equal to the sum of $6y$ and which of the following?

- (A) $5y$
- (B) $24y$
- (C) 30
- (D) 12
- (E) 5

Question 3

If $3a + 4b = 12$ and $a = 5b/3$, then $b = ?$

- (A) $5/3$
- (B) $3/4$
- (C) 3
- (D) $4/3$
- (E) 4

Question 4

$$(5x^2 - 2x + 4) - (x + 3)(2x - 1) = ?$$

(A) $3x^2 - 7x + 7$

(B) $3x^2 + 7x + 7$

(C) $3x^2 - 7x + 1$

(D) $7x^2 - 7x + 7$

(E) $7x^2 + 3x + 1$

Question 5

$$\text{If } (n + 2)(7 - 4) = 15, \text{ then } n = ?$$

(A) 1

(B) 2

(C) 3

(D) 4

(E) 5

Question 6

$$\text{If } 3x + 2y = 7, \text{ what is the value of } 6x + 4y?$$

(A) 14

(B) 12

(C) $7/2$

(D) $7/3$

(E) 0

Question 7

If $x = 3ay^2$ and $y = 2r^3$, then x in terms of a and r is which of the following?

- (A) $12ar^6$
- (B) $6ar^6$
- (C) $12ar^5$
- (D) $6ar^5$
- (E) $5ar^5$

Question 8

If $(2x + 3)/3 = 11/3$, then $x = ?$

- (A) 8
- (B) 4
- (C) 2
- (D) $3/2$
- (E) 1

Question 9

If $x + 7 = 5$, what is the value of $x - 7$?

- (A) -9
- (B) -5
- (C) -2
- (D) 12
- (E) 19

Question 10

If $x + 2 = 8$, what is the value of $(x + 3)^2$?

- (A) 81
- (B) 49
- (C) 36
- (D) 16
- (E) 9



Question 1

If $a + b + c = 352$ and $a = -23$, what is the value of $b + c$?

- (A) 329
- (B) 375
- (C) -329
- (D) -375
- (E) 319

Question 2

The product of 15, 20, and x is equal to the sum of $20x$ and which of the following?

- (A) 15
- (B) 280
- (C) 300
- (D) $15x$
- (E) $280x$

Question 3

If $5x + 2y = 6$ and $3x - y = 10$, what is the value of $8x + y$?

- (A) 8
- (B) 4
- (C) 16
- (D) $5/3$
- (E) 2

Question 4

If $y = 8 + x$ and $3y = 3 + 4x$, what is the value of y ?

- (A) -29
- (B) -5
- (C) 5
- (D) $35/4$
- (E) 29

Question 5

If $x = \frac{a^2}{b^3}$ and $b \neq 0$, then $\frac{1}{a^2} = ?$

- (A) xb^3
- (B) $x - b^3$
- (C) x/b^3
- (D) $1/xb^3$
- (E) b^3/x

Question 6

If $8x + 4y = 7$ and $5x + 2y = 3$, what is the value of $3x + 2y$?

- (A) 10
- (B) $\frac{7}{3}$
- (C) 4
- (D) -4
- (E) $\frac{3}{7}$

Question 7

If $a = 3b$ and $b = 6c$ and $3c = d$, then $\frac{a}{d} = ?$

- (A) $1/6$
- (B) $1/3$
- (C) 1
- (D) 3
- (E) 6

Question 8

If $x \times \frac{1}{y} = 1$, which of the following is NOT necessarily true?

- (A) $x^2 = y^2$
- (B) $x^2 = 1/y^2$
- (C) $x^2 + y^2 = 2xy$
- (D) $x = y$
- (E) $x + y = 2y$

Question 9

If $3x + 4y = 12$ and $x + 2y = 2$, what is the value of $2x + 3y$?

- (A) 7
- (B) 12
- (C) 15
- (D) 24
- (E) 30

Grid-in your answer here:

Question 10

If a and b are positive integers and $2a + b = 13$, what is the sum of all possible values of a?

	/	/	
.	.	.	.
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9



Question 1

If $xy = 8$ and $yz = 2$, what is the value of x/z ?

- (A) $1/4$
- (B) 1
- (C) 4
- (D) 8
- (E) 16

Question 2

If $3x + 5y = 5$ and $x + 3y = 2$, what is the value of $2x + 2y$?

- (A) 2
- (B) $5/2$
- (C) 3
- (D) 5
- (E) 7

Question 3

If $3x + 5y = 5$ and $x + 3y = 2$, what is the value of $4x + 8y$?

- (A) 2
- (B) $5/2$
- (C) 3
- (D) 5
- (E) 7

Question 4

If $3x + 5 = 4$, what is the value of $3x - 2$?

- (A) -3
- (B) -1
- (C) 2
- (D) 9
- (E) 10

Question 5

If $P = 3ay^2$, what is the value of a in terms of P and y ?

- (A) $3Py$
- (B) $3Py^2$
- (C) $3P/y^2$
- (D) $P/3y^2$
- (E) $Py^2/3$

Question 6

If $3x = 5$, then what is the value of $9x^2$?

- (A) $81/25$
- (B) 9
- (C) 25
- (D) $225/3$
- (E) 81

Question 7

If $5x - 2y = 12$, what is the value of $5x/2 - y$?

- (A) 4
- (B) 6
- (C) 10
- (D) 14
- (E) 16

Question 8

If $x + y = 3$ and $x + 2y = 4$, what is the value of $x^2 + 3xy + 2y^2$?

- (A) -1
- (B) 1
- (C) 7
- (D) 12
- (E) 34

Question 9

If $x + z = 3$ and $y + z = 5$, what is the value of $x - y$?

- (A) -2
- (B) $5/3$
- (C) 2
- (D) 8
- (E) 15

Question 10

If $xy = 4$, $yp = 2$, $xp = 2$, and $x > 0$, what is the value of xyp ?

- (A) 4
- (B) 8
- (C) 12
- (D) 16
- (E) 20



Question 1

Solve for x , given $\frac{x}{x+1} = \frac{4}{5}$.

- (A) -4
- (B) -1
- (C) 1
- (D) 4
- (E) 5

Question 2

Solve for x , given $\frac{3}{x} + \frac{5}{x} = \frac{1}{3}$.

- (A) 3
- (B) 8
- (C) 14
- (D) 18
- (E) 24

Question 3

Solve for x , given $\frac{2x+1}{3x+1} = \frac{4}{3}$.

- (A) -6
- (B) -1/6
- (C) 0
- (D) 1/6
- (E) 6

Question 4

Find the solution for x , given $x(y+3) - 2 = x(y+1)$.

- (A) y
- (B) -2
- (C) $1/y$
- (D) $1/3$
- (E) 1

Question 5

Solve for x , given $(x + 1)(x - 5) = (x + 2)(x - 7)$.

- (A) -14
- (B) -9
- (C) -5
- (D) 0
- (E) No solution

Question 6

Solve for x , given $\frac{x+3}{x-2} = \frac{5}{4}$.

- (A) -22
- (B) 1
- (C) 2
- (D) 14
- (E) 22

Question 7

Solve for x , given $\frac{3}{x+1} + \frac{2}{x} = \frac{1}{x}$.

- (A) $-\frac{3}{4}$
- (B) $-\frac{1}{4}$
- (C) $-\frac{1}{6}$
- (D) 0
- (E) 5

Question 8

Solve for y , given $\frac{4y+3}{2y-1} = \frac{3}{5}$.

- (A) $-\frac{9}{7}$
- (B) $-\frac{9}{14}$
- (C) $\frac{9}{14}$
- (D) $\frac{9}{7}$
- (E) 18

Question 9

Solve for z , given $\frac{3}{z} - \frac{1}{5} = \frac{1}{2}$.

- (A) -10
- (B) $-\frac{30}{7}$
- (C) 3
- (D) $\frac{30}{7}$
- (E) 10

Question 10

Solve for x , given $x(x - 3) = (x + 3)(x - 4)$.

- (A) -6
- (B) -4
- (C) 0
- (D) 4
- (E) 6



Question 1

If $5 - (x + 6) = 8$, then $x = ?$

- (A) -9
- (B) -7.6
- (C) -3
- (D) 3
- (E) 9

Question 2

If $\frac{x+1}{5} = \frac{x}{3}$, then $x = ?$

- (A) $-\frac{15}{2}$
- (B) $-\frac{5}{2}$
- (C) 0
- (D) $\frac{1}{2}$
- (E) $\frac{3}{2}$

Question 3

Solve for b if $\frac{2}{3}b - 7 = b - 2(b + 3)$.

- (A) 0.6
- (B) 1.67
- (C) 3
- (D) 6
- (E) 7.8

Question 4

A company that produces tables finds that its monthly profit in dollars is given by the equation $P = 250x - 12,500$, where x is the number of tables that the company sells in a month. If the profit goal for April is \$10,000, how many tables must the company sell in order to reach the goal?

- (A) 60
- (B) 70
- (C) 80
- (D) 90
- (E) 100

Question 5

Solve for b if $3a + 5(a + b) = 7$.

- (A) $\frac{8a - 7}{5}$
- (B) $\frac{7 - 8a}{5}$
- (C) $\frac{7}{5} - 8a$
- (D) $8a - 7$
- (E) $7 - 8a$

Question 6

Allen is a furniture delivery driver whose daily income in dollars is given by the equation $I = 0.45m + 75$, where m is the number of miles that he drives in one day. If he made \$142.50 on Tuesday, how many miles did he drive that day?

- (A) 150
- (B) 175
- (C) 200
- (D) 225
- (E) 250

Question 7

What is the solution set of $3x - 5 = 13 - 6x$?

- (A) $\{-\frac{7}{3}\}$
- (B) $\{\frac{1}{2}\}$
- (C) $\{1\}$
- (D) $\{2\}$
- (E) $\{9\}$

Question 8

What is the solution set to the equation $\frac{4x - 3}{2} = 9$?

- (A) $\{10.5\}$
- (B) $\{5.25\}$
- (C) $\{1.875\}$
- (D) $\{1.5\}$
- (E) $\{6\}$

Question 9

What is the solution set to the equation $\frac{-6}{x+4} = 3$?

- (A) $\{-6\}$
- (B) $\{-18\}$
- (C) $\{-22\}$
- (D) $\{-4.5\}$
- (E) $\{5\}$

Question 10

If $m = \frac{n}{3} - 10$, then which of the following expresses n in terms of m ?

- (A) $n = 30m$
- (B) $n = \frac{10m}{3}$
- (C) $n = 3m + 10$
- (D) $n = \frac{m+10}{3}$
- (E) $n = 3m + 30$



Question 1

If $\frac{x-3}{4} = \frac{1-x}{2}$, then $x = ?$

- (A) 5
- (B) $\frac{5}{3}$
- (C) $\frac{7}{3}$
- (D) $\frac{2}{3}$
- (E) This equation has no solution.

Question 2

If $10x + 4 = 6x - 4(x + 5)$, then $x = ?$

- (A) -1
- (B) -2
- (C) -3
- (D) $\frac{1}{8}$
- (E) $-\frac{1}{3}$

Question 3

If $x - (x - 1) - (x - 3) = 10$, then $x = ?$

- (A) -14
- (B) -6
- (C) -2
- (D) 0
- (E) 6

Question 4

If $\frac{y}{x+1} = \frac{3}{10}$, then which of the following equations gives y in terms of x ?

- (A) $y = \frac{3x}{10} + 1$
- (B) $y = \frac{10x + 10}{3}$
- (C) $y = 3x - 7$
- (D) $y = \frac{3x + 3}{10}$
- (E) $y = \frac{3}{10} - x - 1$

Question 5

Solve for b if $\frac{b}{2} + \frac{1}{2} = 1 - \frac{b}{4}$.

- (A) $-\frac{5}{7}$
- (B) $\frac{6}{7}$
- (C) 0
- (D) $\frac{1}{2}$
- (E) 7

Question 6

What is the solution set of the equation $\frac{1}{x} - \frac{3}{2} = \frac{7}{x}$?

- (A) $\{-4\}$
- (B) $\{-1\}$
- (C) $\{0\}$
- (D) $\{1\}$
- (E) $\{4\}$

Question 7

If $2m - 5 = 13$ and $6 - n = 8$, then $2m + n = ?$

- (A) 12
- (B) 14
- (C) 16
- (D) 18
- (E) 20

Question 8

To convert from degrees Celsius to degrees Fahrenheit the formula is

given by $F = \frac{9}{5}C + 32$. If the temperature is 85 degrees Fahrenheit,

what is the temperature in degrees Celsius?

- (A) 29.444...
- (B) 43
- (C) 70.777...
- (D) 95.4
- (E) 185

Question 9

If $\frac{2+x}{5+x} = \frac{2}{5} + \frac{1}{5}$, then $x = ?$

- (A) 1
- (B) 2.5
- (C) 5
- (D) -1.5
- (E) This equation has no solution.

Question 10

If $\frac{p}{2} - 9 = -7$ and $3q + 7 = 10$, then $p + q = ?$

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5



Question 1

If $1 < x < 5$ and $3 < y < 10$, then

- (A) $1 < x + y < 10$
- (B) $3 < x + y < 5$
- (C) $4 < x + y < 15$
- (D) $5 < x + y < 10$
- (E) $10 < x + y$

Question 2

If $33 < x < 43$, then how many distinct values could x have?

- (A) 9
- (B) 10
- (C) 11
- (D) 12
- (E) None of the above

Question 3

If $-12 > -x$ and $y > 7$, then which answer below is a possible value for $(x + y)$?

- (A) -13
- (B) -5
- (C) 19
- (D) 20
- (E) All of the above

Question 8

If $2 \leq n < m \leq 8$ and n and m are integers, what is the least possible value of $(n + m)/mn$?

- (A) $5/56$
- (B) $16/64$
- (C) $15/56$
- (D) $7/10$
- (E) $5/6$

Question 9

Boxes A, B, and C contain marbles. Box A contains more marbles than box B, and box B contains more marbles than Box C. If box B contains 10 marbles, which of the following could not be the total number of marbles in boxes A and B?

- (A) 20
- (B) 21
- (C) 22
- (D) 23
- (E) 24

Question 10

Which of the following is equivalent to $\frac{|x - 3|}{|2|} > 15$?

- (A) $x > 33$
- (B) $x > 36$
- (C) $x < -27$ or $x > 33$
- (D) $x < -12$ or $x > 36$
- (E) $-4.5 < x < 10.5$



Question 1

If $\frac{3}{x} \leq \frac{2}{3}$, then what is the smallest possible value of x ?

- (A) 1.5
- (B) 2
- (C) 4.5
- (D) 5
- (E) 9

Question 2

If $a < b < 0$, then which of the following *must* be true?

- (A) $ab < 0$
- (B) $a^2 < b^2$
- (C) $b - a < 0$
- (D) $a + b < 0$
- (E) $a - b < a$

Question 3

If $0 < x < 1$, then all of the following *must* be true EXCEPT

- (A) $0 < x^2 < 1$
- (B) $\frac{1}{x} > 1$
- (C) $-1 < -x < 0$
- (D) $x^3 > 1$
- (E) $1 < x + 1 < 2$

Question 4

If $\frac{1}{x} > \frac{2}{x+3}$, then which of the following

is the largest possible value of x ?

- (A) -3
- (B) -2
- (C) 2
- (D) 3
- (E) 5

Question 5

If $|2x + 5| \leq 9$, then which of the following is the smallest negative number in the solution set?

- (A) -9
- (B) -7
- (C) -4.5
- (D) -2
- (E) -0.5

Question 6

Which of the following is the solution to $|\frac{x}{2} + 8| < 11$?

- (A) $-38 < x < 6$
- (B) $-30 < x < 14$
- (C) $0 < x < 6$
- (D) $x < 6$
- (E) $x < 14$

Question 7

Which of the following is the solution set of $x^2 < 9$?

- (A) $x < 3$
- (B) $x > 3$
- (C) $x < -3$
- (D) $-3 < x < 3$
- (E) $x < -3$ or $x > 3$

Question 8

Which of the following is not part of the solution set of $|5 - x| \geq 12$?

- (A) -17
- (B) -7
- (C) -5
- (D) 17
- (E) 25

Question 9

Which of the following is not part of the solution set of $|3x - 1| < 9$?

- (A) -3
- (B) -1
- (C) 0
- (D) 1
- (E) 3

Question 10

Which is the solution set of $-4(x + 3) + x < x - 6$?

- (A) $x > -1.5$
- (B) $x < -1.5$
- (C) $x > -3$
- (D) $x > 2.25$
- (E) $x < 2.25$



Question 1

If $x^2 - y^2 = 35$ and $x + y = 5$, what is the value of $x - y$?

- (A) 5
- (B) 7
- (C) 30
- (D) 35
- (E) 40

Question 2

If $x + 2y = 8$ and $2x - y = 2$, what is the value of $2x^2 + 3xy - 2y^2$?

- (A) 2
- (B) 4
- (C) 6
- (D) 10
- (E) 16

Question 3

If the length of a rectangle is $x - 5$ and the width is $x - 2$, which of the following represents the area of the rectangle?

- (A) $x^2 - 7x + 10$
- (B) $x^2 + 7x - 10$
- (C) $x^2 - 3x + 10$
- (D) $x^2 - 3x - 10$
- (E) $x^2 - 7x - 10$

Question 4

If $x^2 + y^2 = 18$ and $xy = -9$, what is the positive value of $x - y$?

- (A) 3
- (B) $3\sqrt{3}$
- (C) 6
- (D) 27
- (E) 36

Question 5

If $x^2 + 3x + 4 = 32$ and $x < 0$, what is the value of x ?

- (A) -4
- (B) -7
- (C) -8
- (D) -28
- (E) -35

Question 6

What is the value of k , if $25x^2 + 2kx + 16$ is a perfect square?

- (A) 4
- (B) 16
- (C) 20
- (D) 40
- (E) 41

Question 7

If a rectangle has an area of $2x^2 + x - 3$ and a width of $2x + 3$, which of the following represents the length of the rectangle?

- (A) $2x - 1$
- (B) $x - 1$
- (C) $x + 1$
- (D) $x - 2$
- (E) $x + 2$

Question 8

Simplify $(x + 3)(2x - 5) + (x - 1)(x - 3)$.

- (A) $3(x^2 + x - 4)$
- (B) $3x^2 + 19x + 18$
- (C) $3(x^2 - 2x - 4)$
- (D) $3(x^2 - x - 4)$
- (E) $3x^2 - 3x + 18$

Question 9

If $x^2 + kx + 64 = (x + r)^2$ and $r > 0$, what is the value of k ?

- (A) 64
- (B) 32
- (C) 16
- (D) 8
- (E) 4

Question 10

If $49x^2 + kx + 16 = (7x + n)^2$ and $n > 0$, what is the value of $k + n$?

- (A) 60
- (B) 56
- (C) 32
- (D) 28
- (E) 4



Question 1

If $4x^2 + kx + 49 = (2x + r)^2$ and $k > 0$, what is the value of r ?

- (A) 49
- (B) 28
- (C) 14
- (D) 7
- (E) $7/2$

Question 2

If $x^2 - y^2 = 8$ and $x + y = 2$, what is the value of $x - y$?

- (A) 16
- (B) 8
- (C) 6
- (D) 4
- (E) 2

Question 3

If $x - y = 3$ and $x^2 - y^2 = 21$, what is the value of $x + y$?

- (A) $1/7$
- (B) 7
- (C) 15
- (D) 18
- (E) 24

Question 4

What is the value of k , if $4x^2 + kx + 49$ is a perfect square?

- (A) 56
- (B) 28
- (C) 14
- (D) 7
- (E) 2

Question 5

$(103)(97) =$

- (A) $100^2 - 2^2$
- (B) $100^2 + 5^2$
- (C) $101^2 - 2^2$
- (D) $100^2 - 3^2$
- (E) $102^2 - 98^2$

Question 6

If a rectangle has an area of $x^2 + 5x + 6$ and length of $x + 2$, which of the following represents the width of the rectangle?

- (A) x
- (B) $x + 1$
- (C) $x + 2$
- (D) $x + 3$
- (E) $x + 4$

Question 7

Simplify $(x - 4)(x + 1) - (x^2 - 3x)$.

- (A) $2x^2 - 6x - 4$
- (B) $-7x - 4$
- (C) $-6x - 4$
- (D) -4
- (E) 4

Question 8

If $(x + 2)(x + 4) - (x - 6)(x + 2) = 0$, what is the value of x ?

- (A) -2
- (B) -4
- (C) 0
- (D) 4
- (E) 6

Question 9

A rectangle with area $x^2 - 1$ has one side with a length $x + 1$. What is the length of an adjacent side?

- (A) $x - 1$
- (B) x
- (C) $x + 1$
- (D) $x^2 - x - 2$
- (E) $x^2 + x$

Question 10

If $16x^2 + kx + 25 = (4x + n)^2$ and $k > 0$, what is the value of $k - n$?

- (A) 5
- (B) 16
- (C) 25
- (D) 35
- (E) 40



Question 1

Solve for x. $\frac{5}{6} = \frac{15}{x}$

- (A) 3
- (B) 5
- (C) 18
- (D) 30
- (E) 90

Question 2

Solve for the missing number. $\frac{6}{9} = \frac{x}{12}$

- (A) 2
- (B) 8
- (C) 54
- (D) 72
- (E) 108

Question 3

Alesia wants to enlarge her 4-inch-wide by 6-inch-long photograph.

She wants the new width to be 10 inches.

To keep the same proportion, what must be the length of the new photograph?

- (A) 10
- (B) 12
- (C) 15
- (D) 25
- (E) 60

Studyguide for the SAT Skill Quiz A: Proportions

Question 4

On a certain map 2 centimeters equal 5 miles.
How many centimeters are equal to 34 miles?

- (A) 5
- (B) 12.8
- (C) 13
- (D) 13.6
- (E) 68

Question 5

To serve 6 people, a certain recipe calls for 2 cups of sugar.
Using this recipe, how many cups of sugar are needed to serve 9 people?

- (A) 3
- (B) 6
- (C) 9
- (D) 18
- (E) 24

Question 6

Julia figures that for every 3 customers entering her flower shop she gets \$20 in sales.
How many customers need to enter her shop for her to get \$300 in sales?

- (A) 2,000
- (B) 900
- (C) 60
- (D) 50
- (E) 45

Question 7

If the ratio of cats to dogs in a certain animal shelter is 5 to 3,
and there are 85 cats, how many dogs are in the pound?

- (A) 6
- (B) 15
- (C) 51
- (D) 93
- (E) 142

Studyguide for the SAT Skill Quiz A: Proportions

Question 8

During the month of May the ratio of grapes to bananas to apples sold in a grocery store was 2:3:5. If the store sold 30 apples in May, how many grapes, bananas, and apples did the store sell in all?

- (A) 30
- (B) 35
- (C) 45
- (D) 50
- (E) 60

Question 9

$1\frac{1}{2}$ is in the same proportion to $1\frac{1}{4}$ as $4\frac{1}{2}$ is to ____?

- (A) 2.5
- (B) 3.75
- (C) 5.4
- (D) 5.8
- (E) 6.2

Question 10

Samuel works in a paint store. Mrs. Adams wants a light blue paint for her bedroom walls. Samuel gets the correct shade of blue by mixing 2 gallons of white paint with 1 gallon of dark blue paint.

How many gallon(s) of dark blue paint is needed to get 5 gallons of the mixture?

- (A) $\frac{2}{5}$
- (B) $\frac{3}{5}$
- (C) $\frac{5}{7}$
- (D) $1\frac{2}{3}$
- (E) $2\frac{1}{2}$



Question 1

If $x + x + x + x + x = 3x + 10$, what is the value of x ?

- (A) 2
- (B) 5
- (C) 10
- (D) 18
- (E) 20

Question 2

If $-5r = 30$, what is the value of r ?

- (A) -25
- (B) -6
- (C) 6
- (D) 25
- (E) 35

Question 3

If $-8x = -48$, what is the value of x ?

- (A) -40
- (B) -6
- (C) 6
- (D) 40
- (E) 56

Question 4

$$\frac{1}{3y} - \frac{4y}{6y^2} + \frac{6y^2}{9y^3} - \frac{4x}{12xy} = ?$$

(A) $\frac{-(3+4x)}{(3+9y^3+12xy)}$

(B) $\frac{-xy^3}{30xy^7}$

(C) $\frac{1}{3}$

(D) 0

(E) $\frac{2}{y}$

Question 5

Solve for r, if $-7r = -21$.

(A) -3

(B) $-1/3$

(C) 0

(D) $1/3$

(E) 3

Question 6

If $x^2 - y^2 = 15$ and $x + y = 3$, what is the value of $x - y$?

(A) $1/5$

(B) 5

(C) 12

(D) 18

(E) 45

Question 7

Simplify: $(4x^3y^2)/(12xy^3z)$.

- (A) $4x^2yz$
- (B) $1/(3x^2yz)$
- (C) $(3x^2)/(yz)$
- (D) $3x^4y^5z$
- (E) $x^2/(3yz)$

Question 8

If $ax + ax + ax + ax + ax + ax = 2ax - 6x$ and $x \neq 0$, what is the value of a ?

- (A) $-2/3$
- (B) -1
- (C) $-3/2$
- (D) -2
- (E) -3

Question 9

If $x \neq y$, simplify $\frac{y^2 - x^2}{x - y}$.

- (A) $x + y$
- (B) $x - y$
- (C) $y - x$
- (D) $-(x + y)$
- (E) $1/(x + y)$

Grid-in your answer here:

Question 10

If x is a positive integer > 3 , $3x < 2y$, and $2y < 2x + 7$,
what is one possible value for x ?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9



Question 1

If $x \neq y$, simplify $\frac{x^2 - y^2}{x - y}$.

- (A) $1/(x + y)$
- (B) $x + y$
- (C) $x - y$
- (D) $1/(x - y)$
- (E) $2xy$

Question 2

If $x^2 y^3 = 34$ and $xy^2 = 1/2$, what is the value of xy ?

- (A) $17/2$
- (B) 17
- (C) $67/2$
- (D) 36
- (E) 68

Question 3

If $x^2 + 3xy = 20$ and $x + 3y = 5$, what is the value of x ?

- (A) -15
- (B) 4
- (C) 15
- (D) 25
- (E) 100

Question 4

Solve the inequality: $-10 < 5x < 15$.

- (A) $-10 < x < 5$
- (B) $-2 < x < 15$
- (C) $-5 < x < 20$
- (D) $-2 < x < 3$
- (E) $-15 < x < 10$

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Question 5

The area of a rectangle is represented by the expression $\frac{7x^2y}{10a^3}$.

If the length of the rectangle is represented by the expression $\frac{14x^3}{25a^2b}$,

which of the following expressions represent the width of the rectangle?

- | | |
|-----------------------|-----------------------|
| (A) $\frac{5ax}{4by}$ | (D) $\frac{5ab}{2xy}$ |
| (B) $\frac{5by}{4ax}$ | (E) $\frac{4ax}{5by}$ |
| (C) $\frac{5xy}{4ab}$ | |

Question 6

If the difference of nine times a number and 7 is equal to the sum of five times the number and 13, what is the number?

- (A) $3/7$
- (B) $1/2$
- (C) 5
- (D) 9.1
- (E) 32

Question 7

If $x^2 + 3xy + 2y^2 = 35$ and $x + 2y = 5$, what is the value of $x + y$?

- (A) $1/7$
- (B) 5
- (C) 7
- (D) 30
- (E) 40

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Question 8

Which of the following expressions represents the area of a rectangle with

length $\frac{5x^2y}{8ab}$ and width $\frac{12a^2b}{25x}$?

- (A) $\frac{17a^2x^2by}{33abx}$ (D) $\frac{3xy}{10a}$
- (B) $\frac{60ax^2aby}{200abx}$ (E) $\frac{10axy}{3}$
- (C) $\frac{3axy}{10}$

Grid-in your answer here:

Question 9

Evaluate the following: $\frac{3}{4} \times \frac{4}{5} \times \frac{5}{6} \times \frac{6}{7} \times \dots \times \frac{26}{27}$.

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Grid-in your answer here:

Question 10

If $\frac{a}{b} \times \frac{b}{c} \times \frac{c}{d} \times \frac{d}{e} \times \frac{e}{f} = \frac{3}{5f}$, what is the value of a?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9



Question 1

What is the solution for $(x - 2)(x + 3) > 0$?

- (A) $x > 2$
- (B) $x < -3$
- (C) $x > 2$ and $x > -3$
- (D) $x > 2$ or $x < -3$
- (E) $x < 2$ or $x > -3$

Question 2

What is the solution for $(x + 2)(x - 3) \leq 0$?

- (A) $-2 \leq x \leq 3$
- (B) $x \geq -2$
- (C) $x \leq -2$ or $x \geq 3$
- (D) $x \leq 3$
- (E) Null Set

Question 3

Solve for x , given $x^2 + 6x > 7$.

- (A) $-7 < x < 1$
- (B) $x > 1$ or $x < -7$
- (C) $-1 < x < 7$
- (D) $x > 7$ or $x < -1$
- (E) $x > -7$

Question 4

What is the solution for $x^2 + 10x + 21 \geq 0$?

- (A) $-7 \leq x \leq -3$
- (B) $3 \leq x \leq 7$
- (C) $x \leq 3$ or $x \geq 7$
- (D) $x \geq -3$ or $x \leq -7$
- (E) $x \geq -3$

Question 5

Solve for $x^2 < 3x + 10$.

- (A) $x < -2$ or $x > 5$
- (B) $x < -5$ or $x > 2$
- (C) $-5 < x < 2$
- (D) $-2 < x < 5$
- (E) Null Set

Question 6

What is the solution for $x^2 - 10x + 25 \geq 0$?

- (A) $x \geq 5$
- (B) $x \leq 5$
- (C) Null Set
- (D) All real numbers, except 0
- (E) All real numbers

Question 7

What is the solution for $3x - 2 > x^2$?

- (A) $-2 < x < -1$
- (B) $x < -2$ or $x > -1$
- (C) $1 < x < 2$
- (D) $x < 1$ or $x > 2$
- (E) $x > -1$

Question 8

Solve for x , given $x^2 + 8x - 20 < 0$.

- (A) $-10 < x < 2$
- (B) $-2 < x < 10$
- (C) $x < -2$ or $x > 10$
- (D) $x < -10$ or $x > 2$
- (E) $x > 10$

Question 9

Solve the inequality, $x^2 - 36 \geq 0$.

- (A) $x \geq 6$
- (B) $-6 \leq x \leq 6$
- (C) $x \geq 6$ or $x \leq -6$
- (D) $x \leq 6$
- (E) $x \leq 6$ and $x \geq 6$

Question 10

Solve the inequality, $4x^2 - 9 < 0$.

- (A) $x > -3/2$
- (B) $-3/2 < x < 3/2$
- (C) $x < -3/2$ or $x > 3/2$
- (D) $x > 3/2$
- (E) $x < -3/2$ and $x > 3/2$

